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A FIELD MANUAL FOR CROSS-CULTURAL STUDY OF THE ACQUISITION OF COMMUNICATIVE COMPETENCE. SECOND DRAFT--JULY 1967.

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THIS FIELD MANUAL WAS DEVELOPED AS PART OF A PROGRAM TO TRAIN INVESTIGATORS IN THE COLLECTION OF COMPARABLE CROSS-LINGUISTIC AND CROSS-CULTURAL DATA ON CHILDREN'S ACQUISITION OF LINGUISTIC CODES AND SOCIAL RULES FOR THE USE OF SUCH CODES. ALTHOUGH COMPARATIVE RESEARCH REQUIRES PROCEDURAL STANDARDIZATION, THE PHYSICAL AND SOCIAL CONDITIONS IN THE VARIOUS FIELD SETTINGS INTERFERE WITH STANDARDS SET PRIOR TO ARRIVAL IN THE FIELD. THIS MANUAL CONSTITUTES A COMMON FRAME OF REFERENCE FOR INVESTIGATORS COLLECTING DATA THAT IS TO BE USED IN COMPARATIVE REPORTS. PART I OF THIS MANUAL DEFINES THE MAJOR TOPICS TO BE INVESTIGATED AND SETS UP A RESEARCH SCHEDULE. PART II DISCUSSES SUCH METHODOLOGICAL FACTORS AS CONTRASTIVE ANALYSIS OF LANGUAGES AND CULTURES, RECORDING APPARATUS AND TECHNIQUES, AND NATIVE INFORMANTS, ASSISTANTS AND INTERPRETERS. THE THEORETICAL CONSIDERATIONS INCLUDED IN PART III ARE PHONOLOGY, GRAMMAR, SEMANTICS, THE SOCIAL SETTING OF LINGUISTIC BEHAVIOR, AND LANGUAGE USAGES AND STYLES. APPENDED ARE EXTENSIVE REFERENCES AND ADDITIONAL SUGGESTED FIELD TECHNIQUES. THE READER OF THE MANUAL SHOULD HAVE SOME KNOWLEDGE OF LINGUISTICS BUT NEED NOT HAVE CONDUCTED PREVIOUS FIELD WORK. REQUESTS FOR COPIES OF THE MANUAL AND FOR TAPES TO BE USED IN PHONOLOGICAL IMITATION PROCEDURES, AND INFORMATION ABOUT RELEATED STUDIES SHOULD BE ADDRESSED TO DR. DAN I. SLOBIN, DEPARTMENT OF PSYCHOLOGY, UNIVERSITY OF CALIFORNIA, BERKELEY, CALIFORNIA 94720. (JD)

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A FIELD MANUAL

for cross-cultural study of the acquisition of communicative competence

(Second draft -- July 1967)

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Contents

Page

INTRODUCTION ix

PART ONE: MAJOR TOPICS OF INVESTIGATION

1.0. Research Schedule 1
1.1. Motor Development 6
1.2. Linguistic Development: Phonology 11
  1.2.1. Definitions 11
  1.2.2. Imitation 11
  1.2.3. Babbling 13
  1.2.4. Speech Samples 14
1.3. Linguistic Development: Vocabulary 15
  1.3.1. Initial Vocabulary 15
  1.3.2. Vocabulary Related to Grammatical Categories 16
1.4. Linguistic Development: Grammar 18
  1.4.1. Collection of Basic Corpora 18
  1.4.2. Elicited Sentence Imitation 22
  1.4.3. Speech Comprehension 27
  1.4.4. Elicitation of Speech 31
1.5. Communicative Development. 37
  1.5.1. The Child's Lifespace 37
  1.5.2. Dialog between Children 41
  1.5.3. Parental Baby Talk 42
  1.5.4. Communicative Routines 46
1.6. Linguistic Belief Systems. 50
1.7. Notes and Queries for Observation. 56

PART TWO: METHODOLOGICAL FACTORS

2.1. Contrastive Analysis 61
  2.1.1. Methods 61
  2.1.2. Style vs. Speaker 62
  2.1.3. Functional Realization 64
  2.1.4. Linguistic Contrasts 64
  2.1.5. Vocal Signals 66
  2.1.6. Intelligibility 67
  2.1.7. Evaluation 68
2.2. Recording Apparatus and Techniques 71
  2.2.1. Apparatus 71
  2.2.2. Recording Techniques 77
  2.2.3. Care and Servicing 80
  2.2.4. Checklist 82
2.3. Native Informants, Assistants, and Interpreters. . . . 84
  2.3.1. Factors of Social Organization 85
  2.3.2. Problems of Social Change. 87
  2.3.3. Social Criteria in the Selection of Informants and Assistants 88

Page

PART THREE: THEORETICAL CONSIDERATIONS AND POSSIBLE SUBSIDIARY STUDIES

3.1. Phonology 93
  3.1.1. Pre-Linguistic Studies 93
  3.1.2. Linguistic System 95
3.2. Grammar 105
  3.2.1. Aspects of the Acquisition of English Grammar 106
  3.2.2. Implications and Suggestions for Cross-Linguistic Research 116
3.3. Semantics 121
  3.3.1. Language and Cognitive Development . . . 121
  3.3.2. Componential Analysis 124
3.4. The Social Setting of Linguistic Behavior 129
  3.4.1. The Relation of Linguistic to Social Categories 129
  3.4.2. Relation of Language Development to Other Areas of Socialization. 135
  3.4.3. Informal Education 137
  3.4.4. Formal Education 149
3.5. Usage and Styles 155
  3.5.0. Introduction 155
  3.5.1. The Acquisition of Usage Patterns 157
  3.5.2. Special Languages, Verbal Art, Speech Play. 166
  3.5.3. Natural Conversation 172
  3.5.4. Multilingualism and Multidialectism . . . 176
  3.5.5. Linguistic Taboos 180
  3.5.6. Speech Acts: Notes for Designing a Cross-Cultural Study of the Speech Act of Promising 186

APPENDICES

1. Techniques for Studying Grammatical Development . . . 193
  1.1. Model Sentences for Elicited Imitation . . 193
  1.2. Comprehension Tests 198
  1.3. Elicitation Techniques 201
2. Transcription of Tapes 212
  2.1. Nature of Transcription 212
  2.2. Suggested Transcription Format for Dialog . 214
  2.3. Suggested Transcription Format for Imitation 217
3. Techniques for Studying Multilingualism 218
  3.1. Picture Vocabulary Test 218
  3.2. Word Association Test 220
  3.3. Following Directions. 220
  3.4. Self-Ratings. 221

Page

4. Useful Tables 222
    4.1. Age Calculation Chart 222
    4.2. International Phonetic Alphabet 223
5. Selected List of References on the Acquisition of 21 Different Native Languages 224

REFERENCES 227

Tables

Page

1. Major Research Tasks 2
2. Distribution of Children by Age, Sex, and Task 3
3. 12-Month Time Schedule 5
4. Developmental Milestones in Motor and Language Development (from Lenneberg, 1967) 6
5. General Scheme of Phonemic Development in Russian Children (after Shvachkin, 1948) 96
6. Fragment of Pivot Grammar of One Child 107

7a Substitution of Phrase for First Member of Open-Open Sentence 108

7b Substitution of Phrase for Second Member of Open-Open Sentence 109

8. Emergence of Noun Phrases 110
9. Negation Stage I 112
10. Negation Stage II 113
11. Negation Stage III 114
12. Negation Stage IV 115
13. Classification of Imitation Situations (from Slobin, 1964) . 141
14. A Partial Checklist of Potential Taboo Domains (after Kany, 1960) 185

INTRODUCTION

This field manual is intended to guide investigators in the collection of comparable cross-linguistic and cross-cultural data on the acquisition of communicative competence. It thus represents a joint endeavor in developmental psycho- and sociolinguistics, for we are concerned both with children's acquisition of linguistic codes and the social rules for the use of such codes.

There have recently been numerous studies employing modern linguistic concepts in the study of early language development in children (reviewed in Ervin-Tripp, 1966). Some longitudinal studies have explored the sound system (e.g. Burling, 1959; Gvozdev, 1948); others have examined syntactic development (e.g. Braine, 1963a; Brown & Fraser, 1963; Gvozdev, 1949; Miller & Ervin, 1964). In some cases cross-sectional methods have been employed (e.g. Berko, 1958; Templin, 1957), establishing norms for age changes in a particular language community. These studies have raised many questions about how children learn the complex linguistic system of any language rapidly, during the same years, and yet reveal relatively small variation in rates of acquisition though there are large variations in practice and exposure to speech. We believe that there are three major gaps in our research on language development.

We need information about the learning of languages which are structurally different from English. There have been proposals (e.g. Chomsky, 1965, 1966, 1967; McNeill, 1966a,b) that certain grammatical structures are universal, and that certain universal cognitive abilities are likely to be involved in language learning. We may also find certain universals in terms of stages of development in children (Jakobson, 1941). All of the recent American studies of syntax have found that at a very early stage children have "pivot" grammars (Braine, 1963a) consisting of classes of a few words which occupy complementary positions. For example, in a given child's grammar, where or there may always come first in sentences, and up and off may always come last. English has rather variable absolute position of words--certainly off and up do not always occupy sentence final position. An even more interesting example is the learning of Russian. The scanty evidence available suggests that Russian children also have pivot grammars at first, even though Russian word order is extremely variable, since it is a language which, like Latin, employs inflectional affixes rather than order for many basic grammatical relations (Slobin, 1966a, in press). Therefore the pivot grammars cannot arise from imitation.

The variety of systems in natural languages is so great that the study of language acquisition in varying languages can be regarded as a natural experiment which it would be extremely difficult to simulate artificially. For example, American Indian languages have far more complex verb inflections and verb morphophonemics than English but we do not know about child language development in any American Indian

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The Introduction was written by Susan M. Ervin-Tripp.

language. The attempt to simulate primary language learning with an artificial language is manifestly extremely difficult, and so far experiments of this sort have been very limited in scope, have studied older children,and have essentially been second language studies. There is reason to believe that first and second language learning may be quite different, and that one cannot generalize from one to the other.

The second desideratum is that language acquisition studies be broadened to include not only the traditional formal core of language, but competence in the use of language. Not only do children learn the phonology, grammar and vocabulary which permit us to identify a language, but they learn when to speak, when to be quiet, when to use ritual language, when to use baby talk, when to use polite forms, and when to shift language in a multilingual community. We know nothing about the relation between these aspects of learning and the learning of the basic code, but it is clear that instruction about when to vocalize and when to be silent can begin even before language begins. Differentiated style according to the age of addressee can be seen in children under three, as shown in baby talk addressed only to infants, polite requests only to older children or adults, and systematic differentiation of multilingual usage.

The uses of language may vary considerably in different cultures. Theoretical discussion of one aspect of functional variation has become well known through the writing of Basil Bernstein (1961a,b, 1962, 1964). In brief, he argues that members of closed social networks use "restricted codes" which are highly redundant. In contrast, members of open networks and their children can switch to an "elaborated code" which is less redundant, uses more complex and varied forms of subordination, and relies on vocabulary and syntax more than on voice quality and paralinguistic signals for differentiating meaning. Underlying these formal contrasts there appear to be differences in the usual functions of language. The acquisition of full competence in writing requires the acquisition of an elaborated code, so analysis of these code differences may be very important in studying literacy.

There has been increasing attention recently by anthropologists to the formal description of rules of speech in terms of social variables such as rank, age, and sex of addressee, and occasion, which condition alternation in speech (for references, see Gumperz, 1965a; Hymes, 1964). There has also been a characterization of certain structural relations or sequences in speech events such as greetings, thanks, conversation, introduction, and narration. To qualify as a native speaker in a speech community one must learn these rules as well as the rules of grammar. This is to say, of course, that one must learn to behave as though one knew the rules. Assessment of the acquisition of this competence should be as fundamental to the study of language development as the study of the formal grammatical code.

The study of sociolinguistic rules is in its infancy, so we are thrown back on ethnographic notes and queries rather than on precise hypotheses and methods as devices for directing field workers. One of our goals in this research is to obtain sufficient ethnographic data to provide a basis for comparative discussion among the field workers. This portion of the Field Manual must constitute early steps towards a sociolinguistic theory.

There has been considerable controversy over the role of the social milieu in language development (Lenneberg, 1967). The controversy turns on the degree to which a strong maturational component in language development may make linguistic competence relatively impervious to acceleration through changes in milieu. The linguistic repertoire of the community clearly must influence the content of the child's learning, but it is not clear whether the order of acquisition of grammatical or sociolinguistic rules might be altered either by their place in the adult system or by specific values and practices of the child's caretakers. These practices include prohibiting or encouraging the child's presence when various speech events occur, and stimulating or responding to his speech.

In advance, it is not clear how one would devise universal measures of rate of development, in order to test hypotheses about the relation of milieu and language development. However, if we are able to find situations in which natural variations exist within communities, as in the United States, one can provide a rough assessment of such effects. We regard experimental manipulation (Cazden, 1965) as desirable when some of the possible features of influence have been identified. But some kinds of manipulation are ethically impossible, though they are found often in nature. For example, variations in family structure can easily be studied, including presence and absence of father or mother, presence of extended family acting as socializers, peer groups who are kin or primarily non-kin. Labov's work (1965) suggests that after five the peer group may be the primary source of language socialization.

An example of social effects on language development can be found in the studies of sex differences in the rate of language development. Puerto Rican language development in general is faster than in matched English-speaking groups in New York, and no sex differences appeared (Anastasi & de Jesús, 1953) though girls were superior in the white sample, and boys in a Negro sample (Anastasi & D'Angelo, 1952) in New York; in Detroit (Thomas, 1962) also in a Negro lower-class sample, boys were extremely handicapped. It seems quite evident that the causes for these differential developmental rates are social, but we have too little information about relevant features of the social environment to draw any conclusions.

The first phase of this research is inevitably descriptive. There has never been a systematic study of language socialization, including the milieu and sociolinguistic competence. Ethnographies usually lack much information about family interaction, especially in urban settings, because it occurs relatively privately. As we indicated earlier, some studies comparing language development rates in different groups in the United States cannot be interpreted because we lack information about their language socialization practices.

The material on language development in the narrow sense, which will include considerable text collection from a small group of children, will permit cross-linguistic comparisons of the development of structured systems. In these cases, differences may derive from differences in linguistic structure.

The outcome of the initial fieldwork laid forth in this manual will allow for: (1) generalization about development of given linguistic features in given languages, on the basis of a very small set of tests and a sufficient sample to support preliminary generalization; (2) disconfirmation of assumptions about universals in development or milieu, and suggestions of new hypotheses about possible universals, either descriptive or structural, hitherto unnoticed; (3) data for building a sociolinguistic theory; and (4) further work in the same and carefully selected comparable field sites. Such further work will be devoted to the collection of larger samples for descriptive purposes, and will explore antecedent-consequent relations in cultures where internal variations in antecedent (milieu) variables are found. For example, if we are to study the learning of sociolinguistic rules in any detail, we need more work in each culture on characterizing the relevant rules. In the first phase of the work, outlined here, we place a different fieldworker at each site. In later stages, detailed cross-cultural testing of particular hypotheses might require collaboration between a traveling specialist and teams of local fieldworkers at established and well-studied sites.

This field manual is the joint product of the authors, and is intended to provide a guide for them as they do their first fieldwork on these problems.* It is also intended as a guide for others who may wish to contribute to our small store of knowedge on these problems. In picking new field sites for the use of this manual, an important consideration is the availability of an adequate linguistic description of the local language. In terms of training and site selection it would be difficult to improve on the advice offered by Margaret Mead over 35 years to those who would study "the primitive child":

> The student should have training in both anthropology and psychology, with an emphasis in psychology upon social, child, and abnormal psychology. Experience in psychiatric case work, especially among children, or in teaching, will prove more valuable than a knowledge of laboratory methods and equipment which it is almost impossible to use in the field. The anthropological training should emphasize particularly work in social organization--analyses of kinship

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* Major writers of sections of the Manual are indicated on the first page of each section. The entire Manual was extensively edited by Dan I. Slobin.

> systems, a sufficient knowledge of primitive religion to familiarize the student with the alien concepts which he will encounter, and a good training in linguistics. (The ability to learn language quickly and a high memory span for nonsense material are perhaps the two most necessary native abilities for this type of work.) A detailed knowledge of the ethnography of the area chosen is also necessary. A student whose training is primarily in psychology [or, we might add, in linguistics] would be wise to choose an area which has been well described ethnologically . . . The choice of an area which has already been described has also the advantage that the conditions will be known, the problem can be phrased in advance in terms of the culture.
>
> For those, however, with a broader ethnological training and interest, other cautions hold. . . . the final choice of a working location must be made from nearby, and be based upon exact information concerning the size of the community and the residential arrangements. For example, a detailed study of children could not be made in Dobu, where each village comprises only ten or fifteen people, and the members of each village are hostile to the members of other villages. Cultural attitudes towards children should be ascertained, if possible. For most purposes, it is better to work in a region where children are regarded as the most natural interest for adults than in a place where a man of rank is never supposed to speak to a child. A male investigator should try to find a region where the fathers play an important domestic rule. A woman investigator should attempt to discover the native attitudes toward barrenness and marital status in relation to their power of bringing good or bad luck to children, and then disclose herself as single, widowed, divorced, the mother of twins left with their grandmother, or whatever fable is most likely to give the natives confidence in her (1931, pp. 685-6).

We urge anybody planning to take the Field Manual to a field site to choose a location where there are current research field stations. The number of such field stations is increasing, and information about them can be obtained from the Whitings at Harvard or from other anthropologists doing comparative work. The advantages of working at an established site are that initial work on censuses and basic ethnography will be available, and local well-trained collaborators will be at hand. Work along the lines of this manual could also be done fruitfully within the highly varied speech communities in western cultures, for example, communities of immigrants, the deaf, American Indians, and so on.

Before going to actual field sites, it is a good idea for all who intend to use this manual to try out all of the methods they plan to use with appropriate families nearby, preferably sufficiently distinct in culture and language as to provide a fair anticipation of later field problems. Any comparative work must require some procedural standardization, and it is highly necessary to have prior communication about difficulties before fieldwork begins. Conditions in the field interfere with standardization in several ways. In terms of physical and social setting, the investigator is increasingly removed from the frame of reference in which he first discussed these problems; therefore investigators become more unlike each other in the field setting. Communication with others whose data must be the basis for comparative reports is much more difficult for a variety of reasons. The severe demands of settling into a new community and establishing rapport make it very likely that investigators will surrender all efforts at a common set of aims and procedures unless very explicit prior commitments are made. These are likely to be especially severe problems for anthropologists whose relativistic ideology may make it seem a positive good to depart from the common frame of reference established prior to departure for the field. The Field Manual is meant to be a shared commitment restraining these forces.* Pilot studies within the home country can permit the investigators to cope with some of these strains while still in the work group. For this reason we recommend that any investigators not in our initial group write to us about any ambiguities they find doing pilot work from the Manual, in order to make our studies as comparable as possible. Comments about the Manual, requests for copies and for tapes to be used in the phonological imitation procedures, and information about related studies should be addressed to Dr. Dan I. Slobin, Department of Psychology, University of California, Berkeley 94720.

Throughout our work on the Manual, in 1966 and 1967, we have been given a home in the Institute of Human Learning of the University of California at Berkeley, to which we express our gratitude. Since the first draft of the Manual was prepared, funds from Contract 4-7-008757-2015 with the U.S. Office of Education have enabled us to try out procedures locally. Through Project Literacy, the Office of Education also indirectly financed a series of consultative meetings about the problems raised by the draft manual. Many generous colleagues have given freely of their time and counsel, either through visits or letters --or both. These include Harriet Amster, Ursula Bellugi, Noam Chomsky, Aaron Cicourel, A. Richard Diebold, Jr., Joe Dillard, Charles A. Ferguson, Robert Hess, Dell Hymes, Vera John, Edward S. Klima, Eric H. Lenneberg, William Labov, David McNeill, Wick Miller, Michael Moerman, Harry Osser, Harvey Sacks, Emmanuel Shegeloff, Elizabeth F. Shipley, Tatiana Slama-Cazacu, Carlota S. Smith, William Soskin, William Stewart,

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* All fieldworkers are urged to supplement this manual with the Field guide for a study of socialization (Whiting et al., 1966), used by the Harvard study of child rearing in six cultures. That manual contains many valuable suggestions on the study of socialization and fieldwork in general, and is referred to at various places in our manual. Another useful aid is W. J. Samarin's Field linguistics (1967), to which we also refer the reader for additional advice.

and Beatrice Whiting. As a result of their advice we made changes in the Manual, and learned from them much more which may influence the work of those present at our meetings. We wish we could specify more precisely each of the great variety of valuable contributions we have received. (Responsibility for the final contents of the Manual, of course, lies with us.)

The Social Science Research Council, through the Committee on Sociolinguistics, has helped finance the fieldwork in this study with funds from the National Science Foundation. Recipients of such aid have been Jan Brukman, in a Koya-speaking village in India, and Claudia Mitchell, in a working-class Negro section of Oakland, California. In 1967-68 Carolyn Wardrip will study middle-class white families in Berkeley, and David Argoff will compare Finnish and Russian-speaking families in Finland and the Soviet Union. In addition, Brian Stross in Chiapas, Mexico, and Keith Kernan in Samoa will carry out field manual studies under separate sponsorship. Clerical assistance is being provided by Rachel Holmen. The group will reassemble in the summer of 1968, with others who have done similar research, to prepare a third revision of the manual for publication, and to work on problems of data analysis. We are grateful for the extensive support which has been available in these initial phases of our comparative research. We view this project, though it began in Berkeley, as an effort at national and international collaboration, and welcome others who wish to join in the various phases of our work.

PART ONE

MAJOR TOPICS OF INVESTIGATION

1.0 RESEARCH SCHEDULE

There are fourteen major areas of investigation which constitute the core of this field manual. All researchers are expected to collect comparable data on these central topics, following the schedule of activities presented below as closely as possible. In addition to the major topics, the researcher is encouraged to refer frequently to the "notes and queries" section presented at the end of Part One (1.7), and to be constantly alert to the theoretical considerations and possible subsidiary studies presented in Part Three. A number of important methodological factors are spelled out in Part Two, and the Appendices contain examples of specific tests and procedures. The investigator should read through the manual at least once a month during his stay in the field.

A core sample of 24 children, between the ages of six months and 13 years, will serve as subjects and informants for the central investigation, along with a number of adults in the community, including the mothers of some of the children. Each of the major topics is taken up in detail, following an initial outline of the schedule of research activities to be undertaken in the field. This schedule presupposes a twelve-month field visit, leaving the first month free for orientation, and the last month to make up for inevitable slippages in the schedule, transcription of materials gathered at the end of the stay, etc.

At the time of beginning formal research (the second month in our schedule) the investigator should have some knowledge of the language, should have selected a native assistant (see Section 2.3), and should have designed the research materials for topics IV, VII, VIII, and IX. The schedule is arranged so that the first contacts with child subjects are with older children (3;4 - 7 years), in order to facilitate entry into the world of child speech. Table 1 presents the list of research tasks; Table 2 the distribution of children across topics; and Table 3 the 12-month time schedule.

Section 1.0 was written by Dan I. Slobin.

Table 1. Major Research Tasks*

I. Determine level of motor development [1.1].

II. Record babbling [1.2.3].

III. Elicit and record imitation of prosodic aspects of speech according to standardized tests [1.2.2].

IV. Elicit and record imitation of phonological aspects of speech according to standardized tests [1.2.2, 1.3.1].

V. Elicit and list initial vocabulary [1.2.4, 1.3.1].

VI. Record free interaction between child and mother (or mother-surrogate) for intensive grammatical analysis [1.4.1].

VII. Elicit and record imitation of systematically constructed model sentences [1.4.2].

VIII. Administer standard speech comprehension tests [1.4.3].

IX. Elicit and record production of grammatical speech according to standardized tests [1.4.4].

X. Describe child's interaction networks and standard daily activities, over the course of a year, on the basis of observation and interview of child and parents [1.5.1].

XI. Record and observe dialogs between children [1.5.2].

XII. Record speech of mother to child [1.5.3].

XIII. Observe communicative routines [1.5.4].

XIV. Interview adults concerning beliefs about language acquisition and use [1.6].

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* Figures in square brackets refer to descriptions of data-gathering techniques to be found in Part One of the Field Manual.

In Table 2 each child receives a letter designation, which serves to identify him in the subsequent text. In noting ages, a semicolon separates years from months; a comma should be used to separate months from days: e.g. a child of age 2;10,13 is two years, ten months, and thirteen days old. The investigator should attempt to find children as close to the ages given as possible; the tolerance range should be about one month (in those societies where exact ages of children are known). Column XIV refers to the child's mother. Research months are counted from arrival in the field. (If the field stay is longer than 12 months, the researcher may wish to begin the formal schedule later than the second month; however, at least one free month should be left at the end for unforeseen circumstances.)

Table 2. Distribution of Children by Age, Sex, and Task

Child	Age	Sex	I	II	III	IV	V	VI	VII	VII	IX	X	XI	XII	XIII	XIV	First Research Month
A	0;6	M	+	+	+	+						+		+	+	+	3
B	0;6	F	+	+	+	+						+		+	+	+	4
C	*	M	+		+	+	+					+		+	+	+	6
D	*	F	+		+	+	+					+		+	+	+	6
E	*	*	+			+		+	+	+	+	+		+	+	+	3
F	*	*	+			+		+	+	+	+	+		+	+	+	4
G	2;0	M	+			+			+	+	+	+	+		+		3
H	2;0	F	+			+			+	+	+	+	+		+		3
I	2;8	M	+			+			+	+	+	+	+		+		3
J	2;8	F	+			+			+	+	+	+	+		+		3
K	3;4	M	+			+			+	+	+	+	+		+		2
L	3;4	F	+			+			+	+	+	+	+		+		2
M	4;2	M	+			+			+	+	+	+	+		+	+	2
N	4;2	F	+			+			+	+	+	+	+		+	+	2
O	5	M										+	+		+		2
P	5	F										+	+		+		2
Q	7	M										+	+	+	+	+	2
R	7	F										+	+	+	+	+	2
S	9	M										+	+		+		3
T	9	F										+	+		+		3
U	11	M										+	+		+		3
V	11	F										+	+		+		3
W	13	M										+	+	+	+	+	3
X	13	F										+	+	+	+	+	3

* Note: The age of children C and D is indeterminate; they should be early in the one-word stage, and have a limited vocabulary. Children E and F are not picked on the basis of age, but mean-utterance length, as described in 1.4.1; their sex is not important, but they should both be of the same sex.

For each child studied, the investigator should prepare a dossier containing such information as the following:

- name
- birthdate (or closest approximation)*
- sex
- handedness
- general physical description (accompanied by photographs)
- general mood description
- any relevant pathology or abnormality
- level of motor development (see Table 4)
- articulateness and quality of speech and voice

- family situation**
  - parents living?
  - parents' ages
  - number, ages, and sexes of siblings
  - people living in household and their relation to child
  - relevant kin living elsewhere
  - status and occupation of family and its members
  - description, photographs, and map of dwelling

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* In some field situations the investigator may not be able to ascertain the exact date of birth of a child, or even its general age. In such cases, try to determine the time of the child's birth in regard to a season, a festival, a special event, an historical occasion, or the like. It may also be helpful to ascertain the child's age relative to other children for whom more precise information is available. Some guides to estimation of children's ages can be found in Bayler and Bayley (1959), Krogman (1941, 1958), and Watson and Lowrey (1951, esp. pp. 44-76). Bayler and Bayley present height and weight curves and graphic growth records for boys and girls (charts available from Medical Dept., Ross Laboratories, Columbus 16, Ohio). However, it should be borne in mind that such statistics vary with race and environment. Krogman (1958, pp. 52-67) lists many references on environmental, racial, and dietetic influences upon physical growth; and Krogman (1941) gives many tables on season, diet, health (pp. 704-801), and socioeconomic status and rural-urban contrast (pp. 802-857) in relation to growth measures. Behavioral indices of age are probably more useful cross-culturally than are morphological indices.

** A more detailed outline of this part of the dossier is given in 1.5.1.

Table 3. 12-Month Time Schedule*

	Child																							
Month	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
1																								
2											K	L	M*	N*	O	P	Q*	R*						
3	A*				E*		G	H	I	J									S	T	U	V	W*	X*
4		B*				F*					K	L	M	N										
					E*																			
5	A*						G	H	I	J														
6		B*	C*	D*	E*						K	L	M	N										
7	A*					F*	G	H	I	J														
					E*																			
8		B*									K	L	M	N										
9			C	D	E*		G	H	I	J														
10						F*									O	P	Q	R						
					E*																			
11							G	H	I	J									S	T	U	V	W	X
12																								

* Notes: Asterisk after child's initial in a given month means that mother is also to be studied in that month--either to record her speech to the child (XII) or to interview her concerning beliefs about language acquisition and use (XIV), as shown in Table 2. Horizontal lines indicate months; because E is to be visited every 6 weeks, he frequently falls on the line between months.

1.1. MOTOR DEVELOPMENT

There is good reason to believe that, in normal children, speech and motor development follow temporally related maturational sequences. This thesis is most clearly developed by Eric Lenneberg, in his recent book, Biological foundations of language (1967):

> The onset of speech consists of a gradual unfolding of capacities; it is a series of generally well-circumscribed events which take place between the second and third year of life. Certain important speech milestones are reached in a fixed sequence and at a relatively constant chronological age. Just as impressive as the age constancy is the remarkable synchronization of speech milestones with motor-developmental milestones . . . (p. 127).

In Table 4, below, we reproduce Lenneberg's Table 4.1 (pp. 128-130), in which this "temporal interlocking of speech milestones and motor milestones" is revealed. It is evident that cross-cultural research is needed to validate Lenneberg's assertion that this developmental sequence is universal.

The categories presented under "Vocalization and Language" in the table are clear. The investigator should be certain that his sample includes children demonstrating the forms of vocal and verbal behavior summarized there. With the exception of the very youngest infants, children A-N should satisfy the requirements of these categories, and they are marked appropriately under column I in Table 2. Neonates should be found for the 12-, 16-, and 20-week-old entries in Lenneberg's table. The descriptions of stages of motor development in that table are likewise quite clear, and the investigator should have little difficulty designing simple tests to determine the motor milestones described by Lenneberg. (Watson and Lowrey [1951, pp. 87-99] also present norms of behavioral development, including motor, adaptive, language, and personal-social milestones.)

Table 4. Developmental Milestones in Motor and Language Development (from Lenneberg, 1967)

At the completion of:	Motor Development	Vocalization and Language
12 weeks	Supports head when in prone position; weight is on elbows; hands mostly open; no grasp reflex.	Markedly less crying than at 8 weeks; when talked to and nodded at, smiles, followed by squealing-gurgling sounds usually called cooing, which is vowel-like in character and pitch-modulated; sustains cooing for 15-20 seconds.

Section 1.1 was written by Dan I. Slobin.

Table 4. (cont.)

At the completion of:	Motor Development	Vocalization and Language
16 weeks	Plays with a rattle placed in his hands (by shaking it and staring at it), head self-supported; tonic neck reflex subsiding.	Responds to human sounds more definitely; turns head; eyes seem to search for speaker; occasionally some chuckling sounds.
20 weeks	Sits with props.	The vowel-like cooing sounds begin to be interspersed with more consonantal sounds; labial fricatives, spirants and nasals are common; acoustically, all vocalizations are very different from the sounds of the mature language of the environment.
6 months	Sitting: bends forward and uses hands for support; can bear weight when put into standing position, but cannot yet stand with holding on; reaching: unilateral; grasp: no thumb apposition yet; releases cube when given another.	Cooing changing into babbling resembling one-syllable utterances; neither vowels nor consonants have very fixed recurrences; most common utterances sound somewhat like ma, mu, da, or di.
8 months	Stands holding on; grasps with thumb apposition; picks up pellet with thumb and finger tips.	Reduplication (or more continuous repetitions) becomes frequent; intonation patterns become distinct; utterances can signal emphasis and emotions.
10 months	Creeps efficiently; takes side-steps, holding on; pulls to standing position.	Vocalizations are mixed with sound-play such as gurgling or bubble-blowing; appears to wish to imitate sounds, but the imitations are never quite successful; beginning to differentiate between words heard by making differential adjustment.

Table 4. (cont.)

At the completion of:	Motor Development	Vocalization and Language
12 months	Walks when held by one hand; walks on feet and hands--knees in air; mouthing of objects almost stopped; seats self on floor.	Identical sound sequences are replicated with higher relative frequency of occurrence and words (mamma or dadda) are emerging; definite signs of understanding some words and simple commands (show me your eyes).
18 months	Grasp, prehension and release fully developed; gait stiff, propulsive and precipitated; sits on child's chair with only fair aim; creeps downstairs backward; has difficulty building tower of three cubes.	Has a definite repertoire of words--more than three, but less than fifty; still much babbling but now of several syllables with intricate intonation pattern; no attempt at communicating information and no frustration for not being understood; words may include items such as thank you or come here, but there is little ability to join any of the lexical items into spontaneous two-item phrases; understanding is progressing rapidly.
24 months	Runs, but falls in sudden turns; can quickly alternate between sitting and stance; walks stairs up or down, one foot forward only.	Vocabulary of more than 50 items (some children seem to be able to name everything in environment); begins spontaneously to join vocabulary items into two-word phrases; all phrases appear to be own creations; definite increase in communicative behavior and interest in language.

Table 4. (cont.)

At the completion of:	Motor Development	Vocalization and Language
30 months	Jumps into air with both feet; stands on one foot for about two seconds; takes few steps on tiptoe; jumps from chair; good hand and finger coordination; can move digits independently; manipulation of objects much improved; builds tower of six cubes.	Fastest increase in vocabulary with many new additions every day; no babbling at all; utterances have communicative intent; frustrated if not understood by adults; utterances consist of at least two words, many have three or even five words; sentences and phrases have characteristic child grammar, that is, they are rarely verbatim repetitions of an adult utterance; intelligibility is not very good yet, though there is great variation among children; seems to understand everything that is said to him.
3 years	Tiptoes three yards; runs smoothly with acceleration and deceleration; negotiates sharp and fast curves without difficulty; walks stairs by alternating feet; jumps 12 inches; can operate tricycle.	Vocabulary of some 1000 words; about 80% of utterances are intelligible even to strangers; grammatical complexity of utterances is roughly that of colloquial adult language, although mistakes still occur.
4 years	Jumps over rope; hops on right foot; catches ball in arms; walks line.	Language is well-established; deviations from the adult norm tend to be more in style than in grammar.

Note that chronological age is really not crucial to the comparisons required by Table 4. What is important is to determine whether motor and speech milestones interlock in the manner presented above. A chart should be prepared for each child, indicating his age as closely as possible, evidence of his level of motor development, and a brief description of the main features of his vocal and verbal behavior.

Lenneberg has done preliminary cross-cultural study of the questions raised here, and the fieldworker will be aided by his observations:

> How universal in human society is the onset of speech? Do cultural attitudes toward child-rearing influence the emergence of speech, or are there languages that are either so complicated that no one can master oral communication until puberty, or so primitive that the entire system is learned by every child before he begins to toddle? . . . Strangely enough, the onset of speech has rarely been a subject of a detailed study in the anthropological literature . . . Apparently no fieldworker has even been struck by any discrepancies between the vocalizations or communicative behavior among the children of "primitive" and "western" man. I have investigated this problem further with the cooperation of several students in anthropology (Samuel Putnam, Mary Ann Whelan, and Eleanor Crocker) who made direct field observations among the Dani of Dutch New Guinea, the Zuni of the American Southwest, and the Bororo of Central Brazil.
>
> In these investigations, children were given tests of sensory-motor development such as coordination for reaching, nature of the grasp, and the ability to walk, stand on one leg, or throw a ball. Tape recordings were made of the vocalizations of the babies before they appeared to possess the common language, as well as of their utterances throughout their physical development to age three. In addition, information was obtained from native informants about the linguistic competence of the various children studied, their fluency, types of mistakes in articulation, syntax, and choice of words, and information was gathered on the parents' attitude toward their children's speech development. In some instances, the chronological age of the child studied was not known, and therefore neither the motor nor the language achievements could be compared directly with the age of emergence in American children. But the chronological age was not as important as the question of whether developmental progress, gauged upon the emergence of definite motor skills, marked also the beginning and major milestones of the child's speech development, and whether the concordance between speech and motor development observed in western children were also found in children of these cultures. As far as we can judge from the analysis of the material, the answer is clearly yes. The first words appear at about the time that walking is accomplished, and by the time a child is able to jump down from a chair (or its equivalent), tiptoe, or walk backward three yards, he is reported by the informants to be communicating fluently, even though certain inaccuracies and childlike usages seem always to persist for a longer period. Anthropologists have pointed out that the label "primitive language" is misleading when applied to any natural living language. The developmental studies here support the view that no natural language is inherently more complicated or simpler to learn by a growing child than any other language. There seems to be no relation between progress in language acquisition and culturally determined aspects of language (1967, pp. 138-9).

It is our hope that users of this Field Manual will gather further evidence in regard to the provocative thesis developed by Lenneberg.

1.2. LINGUISTIC DEVELOPMENT: PHONOLOGY

1.2.1. Definitions

It is common usage in modern American research to refer to three stages of development of infant sounds. Cooing refers to a particular type of sound which is frequent in the first half year. It is distinguished from crying, from fussing, and from organic sounds like belching. For definitions of the other categories, see Lenneberg, Rebelsky, and Nichols (1965). Cooing sounds are primarily vocalic. If consonantal sounds are heard at this stage, they most often are back consonants or continuants, such as nasals. Cooing has a slow onset and therefore gives the impression of leisurely, pleasurable sound. Experimental evidence suggests that by three months of age cooing can be increased in frequency by social reinforcement. At any event it steadily increases, while crying decreases, in observational studies.

Babbling tends to replace cooing, sometimes as early as three months, but more usually after six months. Babbling refers to vocalizing which gives the impression of syllabic repetition. There are repetitions of brief sounds, rather than long gradually changing vowels, and there is closure of the vocal apparatus, with much more precise use of the articulators, such as tongue and lips. While the babbling may sound to a casual listener a lot like adult syllables, e.g. [dadada] or [bababa], an observer may be surprised to see different articulation from adults, e.g. a tongue protruding between the lips.

Speech begins when there is a consistent meaning for the child's utterances other than a broad affective category, though the phonetic variation for a morpheme may be wide at first. The report of the child's caretakers is probably the best clue that the child has speech. There is sometimes a relatively silent period between babbling and the onset of speech, and the child with speech may have simpler and less frequent utterances than he did when babbling.

Once speech appears, there are sequences which cannot be glossed, which one can call gibberish or nonsense. It is not known whether nonsense employs a wider repertoire of sounds than meaningful speech, and therefore is more like babbling in form.

1.2.2. Imitation

Imitation data permit the writing of precise input-output rules and therefore may allow rapid collection of much more complete information on a child's system than would be obtained from spontaneous speech alone. The rule structure may be slightly different than the system for perception or production alone, of course.

Children too young to instruct to imitate frequently do so spontaneously, or can be trained to do so. Training consists of rewarding

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Section 1.2 was written by Susan M. Ervin-Tripp.

any spontaneous instances which seem close to imitation, and gradually "shaping" better imitation until the child responds imitatively with fair frequency. As in other procedures, one may note certain times of day or special circumstances when the child seems more ready to imitate. Wait until the child is freely imitating live voices before setting up equipment for imitation of recorded stimuli. One must thus be prepared to bring in the imitation procedure, or to end it, according to the child's oscillating whims.

For children C-N, the tape recorder itself will be a distraction and will orient the child away from the voice and toward the machinery. Give the child experience in listening to a preparation tape first. This includes music, odd sounds, and voices speaking nonsense. When the novelty wears off, the child may be ready to attend to tapes designed to test his imitations.

As a practical matter, we have prepared a set of stimulus tapes. The use of the same tapes in all field sites will allow comparisons of results. We can include a wider range of material than would be possible if we were confined to oral stimuli provided by the fieldworkers and their assistants. The stimulus tapes can be purchased from the authors.* These tapes consist of a set of three-inch reels with contents as follows:

Tape contents	Child informants			
	A-B	C-D-E	F-J	K-N
Preparation		x	x	x
Vowels and prosody	x	x		
Single consonants	x	x	x	
Disyllabic patterns		x	x	
Clusters		x	x	x
Trisyllabic patterns			x	x

The preparation tape is used to accustom the child to listening to the recorder rather than handling it. The prosody section contains intonation patterns and other suprasegmental variations. The vowel section contrasts high and low, front and back, rounded and unrounded vowels. The consonant and cluster tapes provide examples of highly frequent initial consonants or clusters, and the multisyllabic patterns employ simple components but combined in complex ways to test assimilation.

Procedure

Continue training and preparation until the child seems ready to respond. The stimulus tapes are run on a second tape recorder, if necessary on a small cartridge machine. The usual machine is employed for recording the child's responses. In order to conserve response tape, start and stop the response machine only when the child is producing by the criterion for his age, as indicated below.

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* Available from Dr. Dan I. Slobin, Department of Psychology, University of California, Berkeley 94720.

What is a response? For children A and B, any vocalization is a response. For C-N, there must be evidence that the vocalization is a result of orientation to the stimulus. First, keep distracting people and objects away in any testing session. Use the preparation tape till he is bored with the machine as an object to investigate visually and talk about. The child's caretaker can tell you if the child is talking about something else, and not paying attention to the sounds. If responses are present bearing a rough similarity to the input to convince you the child is listening, then the responses are acceptable.

Sampling

There are several instances of each pattern on the tape. Keep a checklist at hand, and get at least one acceptable response to each stimulus pattern. If the child responds several times to a pattern, so much the better. These repetitions will allow some assessment of the stability of his substitution patterns. On the chart, the children are given between two and four input tapes in all, so some children must be tested more than others. Since no transcription is necessary, the field time consists only of the recording. During the recording, keep some written notes to help distinguish pairs that sound alike on tape like p-k.

1.2.3. Babbling

According to several theories, babbling should gradually become differentiated in different linguistic milieux. This prediction has never been tested, though some current work in spectrographic analysis of babbling tapes from different milieux is being carried out. In order to test this hypothesis, one needs samples of speech addressed to the infants, as well as samples of their babbling. The speech they hear establishes a baseline for judging the differences in input to the children. Such data will be collected in the studies of baby talk (1.5.3). Since it will be used for acoustic analysis, care must be taken to avoid echoes and background noise. A Lavalier microphone on the neck of the caretaker, on the excuse it is used for listening to the child, might give best results.

Babbling samples should be collected in standard situations: half just after feeding, and half while handling objects. To maximize the variety of sounds collected, try to accumulate a total of about thirty minutes of babbling in three minute samples. Probably less than half will actually contain vocalizing and be free of vocal stimulation by others. Avoid background noises where possible, even by bringing the infant into a different setting, unless vocalizing seems to be reduced then. There will be three such tapes of children A and B at bi-monthly intervals. If the recording of the babbling occurs in the midst of other taping, a stopwatch might be used, with a "time in action" attachment, to keep a running record of how many babbling minutes have been collected. Note that these tapes require no processing in the field, since they will be used for laboratory analysis at home.

1.2.4. Speech Samples

The speech samples collected for the study of vocabulary in children C and D (1.3.1) and syntax in E and F (1.4.1) should be of such quality as to allow later phonological analysis. For this to be the case, two criteria are necessary, good quality acoustically and sufficient range of sampling.

It is of particular importance for these tapes to be of good acoustic quality since it will be more important to hear phonological details than in the tapes of the oldest children. For purposes of the phonological analysis, the naturalness of the recording situation is less important for a young child than the lack of noise in the background, and the lack of metallic or other polished surfaces nearby for the reflection of the high pitched voice of the child. If possible, keep the microphone near the child but out of his hands. Speak softly yourself so that the recording level can be kept high.

Ideally, in a phonological study one would keep an ongoing analysis to make sure the data are sufficient at a particular point in development. This is not possible in this study, so that instead one should aim for maximum variety in the tape. Try to tape in situations where the child is most fluent, and when he talks about enough different things to get a varied phonological sample. Ideally one would also get some repetitions, separated enough so that some of the range of free variation for particular morphemes could be sampled.

Transcribing is facilitated in several ways. Try to keep a record, if you can, of the child's speech at the early stages in writing. Some consonant sounds are hard to discriminate from tapes, and such a written notation could aid. Also, it will help you notice when the child spoke inaudibly so that if the item is important you can elicit it again. It would help greatly if the child's caretaker made a running translation of the child's utterances immediately after they occur. This is not too difficult at the early stages. You can hear later on the tape which are expansions and which accurate repetitions. Also the caretaker's version will reveal the overt norm for the phonemes, as the child is given them as a model. Notes on the ongoing activity are necessary, since one always underestimates the dependence on situational environment of young children's speech. If the child's caretaker is not available to help transcribe the tapes, at least the comments on the tape will be a partial substitute.

We have found several mechanical aids to transcription that you may use once back from the field, for ambiguous passages. One is slowing down the tape to half speed. Another is creating a tape loop for ambiguous passages. Systematic testing of alternative interpretations is always necessary, since there is a strong tendency to assimilate what is heard to the norms of the hearer.

(Additional advice on transcription is given in Appendix 2.)

1.3. LINGUISTIC DEVELOPMENT: VOCABULARY

A large-scale study of vocabulary development is beyond the scope of the field project envisioned here. Limited study of vocabulary, however, can contribute to several questions of psycholinguistic theory. In the phonology section, above, reference has been made to vocabulary study in the process of revealing a child's phonemic system and his substitution rules.

1.3.1. Initial Vocabulary

A cross-cultural comparison of the initial vocabularies of children may be revealing in regard to questions of language functions and contexts of language acquisition. Accordingly, we have designated children C and D as subjects for the study of initial vocabulary. These should be children early in the one-word stage, having a small vocabulary (4-40 words, as estimated by mother) at the beginning of the study. C is a boy and D a girl, and each should be visited at least twice, as indicated in Table 3. The researcher's task will be to attempt to elicit as much of the child's vocabulary as possible. (See suggestions in Section 1.2.4, above.) Initially, some time will have to be spent with the child and its mother--listening carefully, asking the mother what the child is saying and what words it knows, and so on. This task is scheduled for the sixth research month, as it will pose the researcher with especially difficult problems of speech perception and elicitation.

We can only provide general research advice in regard to eliciting initial vocabularies. The task would be greatly facilitated if the researcher could find a child able to respond to requests for names (e.g. a child who will name an object pointed to by an adult, respond to a question such as "What's this ? ", and so on). It may be easy to train some children to perform in such fashion. The child should then explore his familiar world with the researcher, with encouragement to name objects. The aim of this exploration will be to reveal (1) the extent and range of vocabulary, (2) the semantic domains named by the child, (3) the "innominate" zones, (4) the nature of generalizations of meaning, and (5) the extent of homonymity.

At the same time, the researcher should be alert to the means in which adults name objects for children (cf. Brown, 1958; and 3.4.3.3). If the mother is cooperative, it would be informative to present her with objects and ask her to name them for the child. Note if this is something which is habitually done, the sort of name offered by the mother (e.g. diminutive, class name, proper name, etc.), the mother's concern for securing the attention of the child and ensuring the retention of the word, and so on. Note also if requests for names are made by the child, and, if so, how they are responded to by adults.

Section 1.3 was written by Dan I. Slobin and Susan M. Ervin-Tripp.

The following methodological suggestions pertain to the study of first words both from the point of view of semantics and phonology:

1) Try to get to know the child so he is not silently inspecting you. Bracelets, keys, clock are good things to interest a child. On the other hand, toys which involve a lot of walking around or make too much noise themselves may interfere with the recording.

2) Identify which words you hear repeatedly used. An older sibling or the mother might translate the word for you in some cases, but you may be able to identify some vocabulary they have not noticed, just by noting regularities of occurrence. Whenever you hear a repetition of sound correlated with circumstance, make a phonetic transcription of what you hear. Also note exactly what the child was looking at, pointing to, or handling. You may be able to get the word also by repeating it and getting an imitation, but make a separate notation when you have done this.

3) Test the semantic range of the child's naming. What else will elicit the same word? Some children will react to questions, such as "What's this?" if done in the right way. Try having an older sibling or the mother do this, or see if they have advice about how to get the child to respond. How you test for semantic range will depend on your own ingenuity. Pictures, "play-doh" and other objects all may work.

4) Set up a range of pictures and/or objects and see what the child will comprehend when you say, "Where's the X?" or, "Bring me the X." Ask the mother what the child is likely to respond to when addressed in this way. Comprehension may be ahead of naming. Note that you can test your hunches about the phonemic system now by varying the word and seeing if it is still understood.

5) In analyzing the phonemic system, note the canonical form of words. What are the free variants in each position? Do certain vowels occur with certain consonants only? What features are constant?

6) To determine substitution rules, get the child to imitate you and see if you are able to predict his substitutions systematically, including the canonical form for words. For example, are polysyllabic words always imitated as CVCV; monosyllabic as CVC? If you repeat the imitation, does the child alter the word he says? If so, how? This gives a clue as to the unstable features of his system.

1.3.2. Vocabulary Related to Grammatical Categories

When working with older children (E-N), the researcher should attend to the acquisition of those lexical categories which have grammatical significance in the language. It has been found, for example, that lexical items referring to certain semantic categories appear in child speech at the same time as those categories become morphologically marked. A good example of this phenomenon is the finding of Gvozdev (1949) that, in a Russian-speaking child, the first use of the word mnogo [much, many] appeared at the same time as the singular-plural distinction in noun markings, and that the words *seychas* [right away] and *skoro* [soon] entered at the same time as the future tense. The researcher would do well, therefore, to watch for the appearance of words referring to such categories as time, number, conditionality, causality, and the like, if the language also marks such categories by grammatical means.

1.4. LINGUISTIC DEVELOPMENT: GRAMMAR

1.4.1. Collection of Basic Corpora

The most extensive recorded speech corpora to be collected in the study are those produced by children E and F. Great care should be exercised in selecting these children, as they will provide the basic data for as full a description of grammatical development in the given language as possible. The research aim is to make these data roughly comparable to those gathered by Roger Brown, Ursula Bellugi, and Colin Fraser in the United States (Bellugi, 1964, 1965, 1967; Brown & Bellugi, 1964; Klima & Bellugi, 1966), and by David McNeil in Japan (McNeill, 1966a; McNeill & McNeill, 1966). The rich grammatical analyses resulting from those studies are based on recording of spontaneous speech, in home settings, chiefly between mother and child. As far as possible, we wish to replicate that situation in our field studies.

Children E and F are to be picked to correspond to the first and fourth stages in the study of Brown et al. Brown's longitudinal study covered several years in the life of each child; since our fieldworkers will probably be in the field for only one year, the best we can do is to select children at different stages of development, and hope to put together some sort of continuous picture--however hazardous--by juxtaposing the records of several children. Because of the very large amount of time required to transcribe spontaneous speech data, we recommend that the sample be limited to two children. Brown's definition of stages is based on mean utterance length and upper bound (longest utterance)--in morphemes. His sample includes three children, for whom the first and fourth stages--the stages we wish to pick for children E and F, respectively--are defined as follows:

	Number of Morphemes	
	Mean Utterance Length	Upper Bound
First Stage	1.75	5.0
Fourth Stage	3.50	11.0

Brown's sample at each stage consists of about 700 utterances, on the basis of which he is able to write systematic and thorough grammars for each of three children at five stages of development. According to Ursula Bellugi (pers. comm., 1966):

> The grammars include information on the appearance of grammatical markers and constructions like the following: lexical items, count nouns, mass nouns, proper nouns,

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Section 1.4 was written by Dan I. Slobin.

personal pronouns, impersonal pronouns, articles, adjectives, quantifiers, process and status verbs, separable verbs, locative and limiting adverbs, prepositions, negative words, interrogative words, imperative words, rejoinders, interjections, nounphrases, noun markers, plural and possessive, case marking in pronouns, number agreement, transitivity, prepositional phrases, verb modifications, progressive, past, indicative, complements, interrogative constructions, auxiliary elements, phase structure rules and transformations, etc.

It is our aim to collect samples of at least 700 utterances from children E and F, following the schedule presented in Table 3. (These data will be intensively analyzed upon return from the field, but should be transcribed in the field.) To be maximally comparable to Brown's children, these children should (1) have a high rate of speech, (2) be largely intelligible, and (3) have a high rate of verbal interchange with mother or mother substitute. Brown and his coworkers found it necessary to visit a large number of homes in order to select three children fitting these criteria. Although we cannot, with a sample of two, either control for or study sex differences, it is at least advisable that children E and F be of the same sex, as we wish to treat their records as at least vaguely continuous. (It is therefore desirable, of course, that they and their home settings be similar in other respects as well).

In addition to seeking children who meet Brown's three main criteria, the investigator must also find children roughly corresponding to Brown's stages of linguistic development. Mean utterance length and upper bound (in morphemes) should be determined for eligible children on the basis of a sample of 100 utterances (either noted by hand or tape-recorded, as circumstances allow). The following are Brown's rules (pers. comm.) for calculating mean utterance length. They will, of course, have to be modified on the basis of the language under investigation.

1. Omit unclear and partial utterances.

2. Include all exact utterance repetitions. Stuttering is marked as repeated efforts at a single word; count the word once in the most complete form produced. In the few cases where a word is produced for emphasis or the like (e.g., *no*, *no*, *no*) count each occurrence.

3. Do not count such fillers as *mm* or *oh*, but do count *no*, *yeah*, and *hi*.

4. All compound words (two or more free morphemes), proper names, and ritualized reduplications count as single words. Examples: *telephone*, *Rackety-boom*, *choo-choo*, *quack-quack*, *night-night*, *pocketbook*, *see-saw*. Justification is that no evidence that the constituent morphemes function as such for these children.

5. Count as one morpheme all irregular pasts of the verb. Examples: got, did, went, saw, etc. Justification is that no evidence that the child relates these to present forms.

6. Count as one morpheme all diminutives (doggie, mommie, etc.) because these children at least do not seem to use the suffix productively. Diminutives are the standard forms used by the child.

7. Count as separate morphemes all auxiliaries. For example: is, have, will, can, must, would. Also all catenatives: gonna, hafta, wanna. These latter counted as single morphemes rather than as going to or want to because evidence is that they function so for the children. Count as separate morphemes all inflections. For example: possessive {s}, plural {s}, 3rd person singular {s}, regular past {D}, progressive {iŋ}.

The investigator cannot, of course, hit the definitions of Stage 1 and Stage 4 exactly on the mark. Brown himself has the following spread in his data, where the figures are based on about 700 utterances per child.

Stage	Child	Mean Utterance Length	Upper Bound
1	Adam	2.06	4.0
1	Eve	1.68	4.25
1	Sarah	1.73	4.0
4	Adam	3.55	12.0
4	Eve	3.70	12.0
4	Sarah	3.62	10.0

Note that no mention has been made here of chronological age. The goal of the investigator should be to find articulate and cooperative children at these stages of development, regardless of age. (Child E, of course, will be younger than F.) E should be found by the third month in the field; F by the fourth. E, the younger, should be visited more frequently than F, as the rate of development will probably be more rapid at earlier stages. As shown in Table 3, E is to be visited six times, at intervals of about a month-and-a-half; while F is to be visited three times, at intervals of three months each. For each visit, recordings should be made on two consecutive days. Recordings should be made at the same time of day, for each child, throughout the series. The aim should be to collect at least 700 utterances at each two-day visit. We recommend two consecutive sessions of 1.5 hours for each visit to E, and two consecutive sessions of 2 hours for each visit to F.

These visits should consist of free interaction between the child and mother (or mother-substitute), with minimal intervention by the investigator and his assistant. The assistant should make on-the-spot notes about utterances which may be difficult to transcribe later, while the investigator should make sufficient notation of actions and situations to make it possible to retrieve the settings and meanings of utterances when making the transcription. The tapes should be transcribed as soon as possible, with the aid of the native assistant, and, if necessary, of the mother. (Appendix 2 contains advice on transcription problems and format.) It would be wise for the investigator and his assistant to get to know the child first, and perhaps to ask the mother to interpret the child's speech before each taping session begins. Time of day and activities should be selected with ease of recording in mind--e.g., circumscribed movement, alertness of child and mother, possibility of normal interaction, etc.

The investigator should also administer to children E and F, at each visit, the standard imitation, comprehension, and eliciting procedures described in Sections 1.4.2, 1.4.3, and 1.4.4 below. Work with children E and F should also be approached in the light of theoretical and practical issues raised in 3.2 and in Appendix 1. Frequent reference should be made to Table 2, in order to ensure that all necessary data are gathered on these two central children (motor development, interaction networks, parental speech and attitudes, etc.). It may also be useful to occasionally give the mother definite tasks to communicate to the child in order to elicit speech from her (e.g. teach words, give orders, teach a game, play a game, read a story, etc.).

1.4.2. Elicited Sentence Imitation

The standardized procedures described in this section, and the next two sections (1.4.3 and 1.4.4), will be administered to children G-N at two-month intervals, as shown in Table 3, and also to children E and F. At the beginning of testing, children G-N, as shown in Table 2, range in age from 2;0 to 4;2, with one boy and one girl picked at age intervals of eight months. That is, testing will begin with two children each of ages 2;0, 2;8, 3;4, and 4;2. The children should be articulate and cooperative. The imitation, comprehension, and eliciting procedures can probably all be administered in a single session. The major task in regard to imitation will be to construct and administer a standard set of about 50 sentences which the children will be asked to imitate at each session, as described below.

Construction of Model Sentences

The model sentences should be carefully designed to reflect the range of sentence types typical to child speech. They should vary in regard to grammatical form, intonation and stress patterns, and length (ranging from two to about eight morphemes). The major sentence types and syntactic processes of the language should be included: affirmative, negative, imperative, yes/no question, "wh" questions, negative questions, sentence conjunctions, embeddings, etc. The sentences should also sample major grammatical categories, such as tense, mood, aspect, etc.

Some sentences should successively increase in length, in order to determine the nature of omissions in imitation (e.g. He sees the ball; He can see the ball; He sees the red ball; He can see the red ball; He can see the big red ball . . .). It is especially valuable to ask the child to imitate sentences which seem to exceed his productive capacity, allowing for revealing alterations imposed on the model sentence by the child's own system of grammatical rules. For example, Bellugi found the following informative imitation in a child whose speech was in a stage of multiple negation (pers. comm.)

Adult: "Adam, say what I say: 'The boy can't have any supper and the girl can't either.'"

Adam: "The boy can't have no supper and the girl can't have none neither."

The model sentences should also allow the child to impose normalizations in his repetitions. For example, Slobin and Welsh (1967) found that a two-year-old girl tended to ignore repeated words in model sentences, as in:

Adult: "Mark fell fell off the horse."

Child: "Mark fell off a horse."

Adult: "I can can can eat."

Child: "I can eat."

Similarly, contracted forms, at a given stage, may be repeated as uncontracted (e.g. he'll as he will), or uncontracted as contracted (e.g. will not as won't). Such findings should be tested cross-linguistically.

Another phenomenon worthy of cross-linguistic validation is the finding of Slobin and Welsh that conjoined sentences are frequently inverted in immediate imitation. For example:

Adult: "Mommy ate the candy and Mommy ate the ice cream."

Child: "Mommy eat the ice cream and Mommy eat a candy."

In constructing the model sentences, the researcher should be careful to avoid phonological ambiguity (e.g. given a model sentence, "That truck is big," it would be difficult to tell if the child imitated the first word as that or the).

In designing model sentences, and evaluating the results of the imitation tests, the findings of previous investigators should be borne in mind. Attempts should be made to produce data relevant to the findings and speculations of American psycholinguists, as exemplified in the passages quoted below:

> With increasing age, children produce more imitations that are morphemically identical with the original. With increasing age, the imitative utterances produced include larger number of morphemes--approaching the numbers in the model sentences. The morphemes produced are invariably in their original order. Omissions do not appear to be random or idiosyncratic. On the contrary, it looks as if, across children and across sentences, there is a consistent tendency to retain one kind of morpheme and drop another kind. The two sorts of morphemes contrast on several correlated dimensions. The morphemes most likely to be retained are: morphemes that occur in final position in the sentence; morphemes that are reference-making forms; morphemes that belong mainly to the large and expandable noun, verb, and adjective parts-of-speech; morphemes that are relatively unpredictable from the context; and morphemes that receive the heavier stresses in ordinary English pronunciation. The morphemes least likely to be retained are: morphemes that occur in intermediate positions in the sentence; morphemes that are not reference-making forms; morphemes that belong to such small-sized grammatical categories as the articles, modal auxiliaries, and inflections; morphemes that are relatively predictable from context and so carry little information; and morphemes that receive the weaker stresses in ordinary English pronunciation (Brown & Fraser, 1964, pp. 75-6).

* * *

This very preliminary analysis [of 1000 elicited imitations from one child] has convinced us that sentence recognition and imitation are filtered through the individual's productive linguistic system. More specifically, we believe that we can tentatively offer the following generalizations:

Echo [the child's pseudonym] can spontaneously utter sentences which she cannot imitate. On the other hand, she can give recoded imitations of model sentences which exceed her productive capacities.

Emphasis can lead her to repeat words she would normally omit from imitation, but she generally ignores repeated words in imitating model sentences.

If she comprehends a sentence, she need not repeat it in the order given. Reordering can also take place as a result of imposing SVO [subject-verb-object] constructions upon model sentences.

The process of sentence recognition includes retrieval of both form and content. Syntactic structures take up space in memory, and frequently content will be sacrificed to the retention of form in immediate, rote imitation. On the other hand, if content has been retrieved and stored, it may be encoded in the child's own syntax in repetition.

A fine-grained analysis of repeated imitations of systematically varied model sentences can reveal aspects of the child's theory of syntax, including transformational rules and the syntactic and semantic markers borne by lexical items (Slobin & Welsh, 1967, p. 17).

* * *

It is clear that A and B structures were different for our subjects: the A structures were relatively easy for them to repeat, the B structures were quite difficult. . . . We differentiate between A and B surface structures in terms of a property I will call compression. Compression refers to the way semantic information occurs in a sentence. When sentences have low compression, semantic information is distributed fairly evenly throughout the sentence; when sentences have high compression, semantic information is bunched together, or compressed, at the nounphrase or verbphrase level. In terms of tree structure, highly compressed sentences have NP or VP nodes dominating several information-carrying elements. In sentences with low compression, NP or VP nodes dominate relatively few information-carrying elements.

The A structures, which the children found easy to repeat, have relatively low compression; B structures, which were more difficult, have relatively high compression (Smith,

> 1966, pp. 11, 13-14). [Smith's model sentences can be found in Appendix 1.1.5.]

* * *

> One may state that within the bounds of a two- to nine-word sentence, the length of the sentence is not critical in determining the success of repetition even for children as young as 3 years. The differences in the ability of children to repeat the various sentences seems to be dependent on the particular rules used to generate these sentences rather than sentence length. . . . The most frequent types of deviation from complete repetition found were modification of transformations and correction of restricted forms [i.e. forms restricted to child grammar]. The modifications always took the form of using a set of rules which come earlier in the grammar than those used in the sentence. . . . When given the memory aid of immediate recall of . . . sentences, a significant number of the children reproduced transformations which they do not use in their own sentences (Menyuk, 1963b, pp. 436-7). [Menyuk's model sentences can be found in Appendices 1.1.2 and 1.1.4.]

* * *

Before attempting to design model sentences in the field language, the investigator should carefully examine Appendix 1.1, which contains lists of model sentences from a number of American studies of elicited sentence imitation.

Administration and Transcription of Imitation Test

The sentences should be presented by a native speaker, in normal speaking intonation, and both the model sentence and the child's imitation should be recorded. It should be fairly simple to train children to imitate. For American children, the instruction, "Say what I say," is generally sufficient, although brief preliminary training is necessary. Menyuk used the following instructions:

> The E [Experimenter] said, "I'm going to say some sentences for you. I want you to say just what I say. If I say 'The sun is shining' I want you to say __________." If the correct response was obtained the E proceeded. If not, the E stated, "No, you say just what I say. If I say 'The sun is shining' you say _______________." No more than these two examples of what was required was needed by any of the Ss [children aged 2;10 - 6;1] (1963b, p. 431).

If a child fails to repeat a sentence, he should be given a second chance, with a second presentation of the model sentence. If he seems to fail to respond because of distraction, the examiner should return to the sentence later in the series. Special note should be made of sentences a child is reluctant to imitate, or refuses to imitate.

Before beginning each recorded session, the investigator should verbally note on the tape the name of the child, the date, the time of day, and the experimental setting (location, other people present, etc.). This information should also appear on the transcribed data sheets. The tapes should be transcribed soon after the session, with the help of the native examiner. The transcriptions need contain only the children's utterances, as the model sentences will be standardized. The model sentences should be numbered, and the transcriptions should indicate the number of the model sentence corresponding to the child's utterance.

In analyzing the data of the imitation test one should note: (1) omissions and changes introduced by children of different ages, (2) number of children of a given age imitating a given sentence correctly, (3) changes with age in a given child's imitation of the same sentence, (4) degree of preservation of pitch, stress, and order of elements.

The data should be examined before the next session with a given child, to allow the experimenter to follow up any suggestive leads with the administration of additional model sentences for repetition between standard sessions.

1.4.3. Speech Comprehension

When working with children E-N, the investigator will want to discover the range of linguistic structures which they can comprehend, as well as imitate or produce. Ideally, all three aspects of linguistic performance--imitation, production, and comprehension--should be examined for each linguistic structure studied. Developmental psycholinguistics, however, has had little success in devising adequate measures of the comprehension of linguistic structures, except for those grammatical distinctions most readily picturable (singular-plural, subject-object of action, etc.).

An important, unsystematic cue to a child's linguistic comprehension comes from an examination of his answers to questions. This means of discovering comprehension will be most valuable for children E and F, for whom the investigator will have many hours of recorded mother-child dialog. Comprehension can also be tested in experimental children G-N through carefully constructed questions, especially if applied to stories which have just been told, to pictures, or to other recent or ongoing events.

More systematic techniques can be developed with the use of standardized pictures. One technique, developed by Fraser, Bellugi, and Brown (1963), involves pairs of pictures illustrating a minimal grammatical contrast, such as singular-plural, and the instruction to point to the picture corresponding to a given utterance (e.g. "The kitten plays" vs. "The kittens play," presented in conjunction with appropriate pictures). The pictures used by Fraser et al. are described in Appendix 1.2.1.

Our pilot studies have raised certain problems, however, in regard to the use of pairs of pictures. It is often difficult to get children to point clearly to one of the pictures, and, even if the child does point, it is difficult to determine if he is guessing. Osser (pers.comm.) has developed a modification of this format, using three pictures: "To test for comprehension of a specific structure the child is presented with a set of three pictures, two of them corresponding to the pair of test sentences, the third picture being a 'neutral' picture with the same visual elements as the other two pictures, but with a different arrangement." For example, to test for comprehension of subject-object relations in the passive, Osser uses the following pictures:

a girl pulling a boy in a wagon
a boy pulling a girl in a wagon
a boy and a girl pulling an empty wagon

The child is then presented with either the sentence, "The boy is pulled by the girl," or, "The girl is pulled by the boy," and must indicate the appropriate one of the three pictures.

This technique, as the picture-pair technique, requires that all of the pictures in a given presentation contain the same elements (e.g. boy, girl, wagon). The experimenter should first offer the child both sentences, and then ask for the picture corresponding to one of them. For example, "Here are some pictures. One of them is called, 'The boy is pulled by the girl'; the other [or another] one is called, 'The girl is pulled by the boy.' Now show me: 'The girl is pulled by the boy.'"

In order to avoid the ambiguity of an uncertain pointing response in a young child, it might be best to mount each picture separately, and ask the child to hand the correct picture to the experimenter. (The pictures, of course, should be sturdily mounted and covered with cellophane or the like to protect them from sticky fingers and other hazards.) Fraser et al. offer the following useful methodological advice for research of this kind:

> The pictures belonging to a contrasting pair were mounted side by side in such a way that there was no consistent relationship on any problem between the order in which a verbal contrast was given and the positions (left or right) of the pictures.
>
> We wanted to be certain that consistently correct responses should be possible only for Ss [subjects] having control of the grammatical contrasts presented. A S ought not to be able to infer correct responses from the positions of the pictures, the order of the problems, the order in which he was asked to respond to the parts of the contrast, or from any interrelationship among these variables. . . . To make sure of these things we used counterbalanced and randomized orders. . . .
>
> Before performing any of the three tasks, the S was shown a colored picture-book and encouraged to talk about the pictures. This helped the child to overcome any reluctance to talk and provided a small sample of the child's spontaneous speech.
>
> . . . After performing both halves of an item, S, whether or not he had answered correctly, was encouraged by E [experimenter] with some such remark as "That's the way." Nonverbal rewards were not used (1963, pp. 128-9).

The pictures, of course, will have to be designed to illustrate relevant grammatical devices of the language in question. In Russian, for example, a single pair or triad of pictures depicting subject-verb-object relations would not be sufficient; rather, a number of such picture sets would have to be drawn in order to present animate and inanimate objects in the masculine gender, and also objects in the feminine and neuter genders, because the object in Russian sentences receives a variety of inflectional markers as a function of animation and gender.

The experiment of Fraser et al. demonstrates that, in spite of the problems involved with the technique of pointing to one of a pair of pictures, such a comprehension test can yield unexpectedly rich data. For example, they found that American three-year-olds treated passive sentences on the basis of standard English word order, treating the first noun as subject and the last as object, thus revealing an important aspect of the English-speaking child's processing of sentences. They conclude:

> In active-voice sentences, subject and object appear in that order, whereas in passive-voice sentences the order is object and subject. Suppose the 3-year-old processes each passive-voice sentence as though it were in the active voice. "The girl is pushed by the boy" is not computed as: Object--Verb in the passive--Subject, but rather as: Subject--Verb in the active with odd appurtenances--Object. The odd appurtenances are is, -ed, and by which S may take to be signs of some uncommon tense like "will have pushed." Processing the sentence in this way would enable S to maintain the generality of the usual rule of English word order in which the subject precedes the object.
>
> With the Subject/Object contrast in the passive voice we turned up a revealing pattern of evidence by accident. If an investigator wanted to use the . . . procedures to test hypotheses about particular aspects of grammatical operation, he could easily design problems that would be revealing by intention (1963, p. 133).

A variety of instructions to manipulate objects can also be revealing of a child's capacities to comprehend speech. In constructing such situations, however, the investigator must be careful to ensure that the only cue to correct performance is linguistic. Parental reports of children's comprehension are almost invariably based on understanding of entire utterances in situations with a good deal of non-linguistic support. For example, if a child performs correctly when told to "put the glass on the table" and "put the milk in the glass," there is no evidence of his comprehension of the difference between the prepositions on and in. He may have responded in like fashion to the two sentences with the prepositions switched, or omitted. A controlled situation such as the following, however, can serve to test comprehension of the two prepositions alone: Present the child with two cups, one inverted and one open, and instruct him to put an object "in" or "on" the cup. Or present the same instructions with only one cup present, inverted or right-side-up. The important control in situations such as these is that there is no cue to the child other than the preposition. (Additional examples of object-manipulation techniques for testing comprehension can be found in Appendix 1.2.2.)

The problem facing all such techniques, however, is that only a limited number of grammatical distinctions can be realized in the form of pictures or object manipulations. Comprehension of subtle matters such as combinations of tense, mood, and aspect, or embedding, and so forth, will have to be examined by the construction of ingenious story comprehension and question-and-answer techniques which probably go beyond the scope of the present project.

Appendix 1.2 should be carefully studied to provide ideas for the construction of feasible comprehension tests in the field.

1.4.4. Elicitation of Speech

In addition to recording spontaneous speech, the investigator will want to attempt to elicit particular types of constructions. Appendix 1.3 contains many examples of eliciting procedures which have been used with English-speaking children; additional advice on elicitation can be found in Section 3.4.3.5. Eliciting procedures can help to increase the richness of data yielded by recorded sessions with children E-N. The American literature contains a number of useful suggestions for eliciting specific grammatical constructions from little children. The following quotations from research studies should be of value to the investigator:

> . . . attempts to elicit negatives were made by putting clothes on the wrong doll or puzzle pieces in the wrong place. Doll clothing was used for eliciting possessives. To elicit an interrogative sentence, two dolls were "fed," and the child was told to "ask Joe what he wants to eat." Plurals were produced for nonsense objects made of play-doh [or wood]. If one of the dolls was left behind, "because he is sick," the child was asked to talk on the toy telephone to find out how "Joe" was, another device for eliciting questions. Telephone conversations with the child tested his reliance on verbal rather than gestural cues. . . .
>
> On the pronoun test, the child was questioned about pictures, the questions being designed to elicit sentences containing possessives and nominative pronouns varying in number and gender. In the test of discourse agreement, questions tested the class of responses, verb restrictions, comprehension of subject-object distinctions ("Who is he feeding?" vs. "Who is feeding him?") and "why" questions. There were two matched forms alternated each month, using the same pictures (Miller & Ervin, 1964, pp. 12-13).

* * *

> To test for yes-no inversion, the child would be instructed to "ask the doll if he wants some food"; or for the morphophonemic patterns of irregular verbs we would say "Ask the doll what he saw yesterday" and the child's response would be either "What did you saw yesterday?" or "What did you see yesterday?". Having the child imitate sentences or phrases provides another check, since it has been found that children seldom imitate grammatical patterns that are not a part of their own language system. Still another technique is to present the child with a choice such as: "Is it a new red dress, or a red new dress?" The child almost always picks the last of two alternatives if he lacks the appropriate grammatical rules (Miller, 1964, p. 7).

* * *

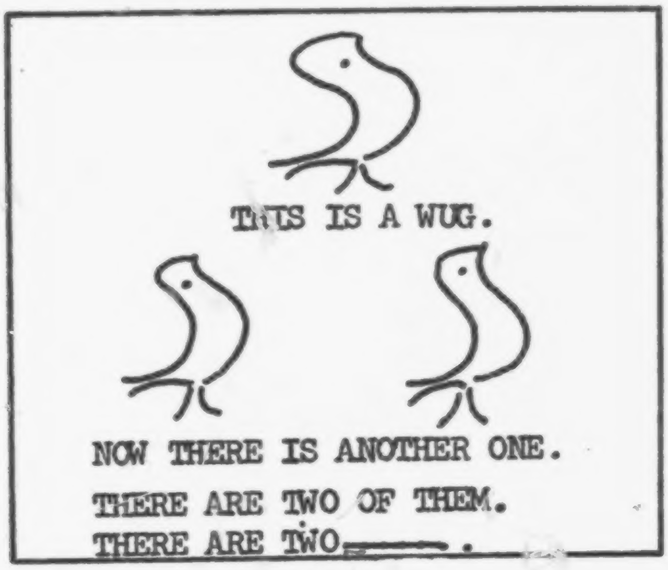
> We hoped to get as much speech as possible in as little time as possible and to have examples of the full variety of sentence types the child could produce. There were those who warned that the child would be shy and speechless in our presence; this was not the case. Mothers told their children that visitors were coming and, in general, we were eagerly welcomed, shown a parade of toys and games, and talked to rather steadily. It became clear that the child expected a guest to put in some time as a playmate, and so the recording was a two-man job with one of us taking data and the other prepared to play cowboy, horsie, blocks, coloring, trains, and the mule in "Kick the mule." [If this is a cross-cultural phenomenon, the investigator will have more than his hands full!] . . .
>
> Much of the time the child was occupied with his normal routine of play, talking with his mother, washing, and eating. So long as these activities involved a reasonable amount of speech, we took no active part beyond delivering signals of attention and approval. When the operant level was very low, we sometimes tried to raise it. In the first days we did the sort of verbal prompting that is anyone's first notion of a technique for eliciting speech from children. You ask what something is called and this brings out vocabulary items--which are not useful for a study of grammar. Or you ask a "yes-no" question such as: "Is that your horsie?" to which the answer is either "yes" or "no." We eventually learned that it is easier to "inspire" speech by doing something interesting than to elicit it with questions. If the adult "playmate" starts a game that is simple, repetitious, and destructive, the child will usually join him and start talking. A universal favorite is to build (painstakingly) an unsteady tower of blocks and register chagrin when the child sends it crashing down. A simple game involving implicit rules--such as the green blocks belong to me and the red ones to you--creates a situation in which negative sentences can be elicited. If the adult playmate breaks the established rule and moves one of the child's blocks, he is usually told that he is *not* to do that (Brown & Fraser, 1964, pp. 51-2).

In addition to these general suggestions, Appendix 1.3 contains explicit tests, designed by Ursula Bellugi, for the elicitation of negation (App. 1.3.1), interrogation (App. 1.3.2), reflexivization (App. 1.3.3), tag questions (App. 1.3.4), and transformations (App. 1.3.5). Many of these techniques have clear cross-linguistic applicability.

Another valuable eliciting technique is to introduce new words and see how they are dealt with by the child. The introduction of artificial words into a child's vocabulary, of course, is but a special case of what happens every day. When new words are used in a form other than that in which they were introduced, the child's linguistic competence is often clearly revealed. For example, when a child spontaneously says "two mouses" or "I breaked the glass" it is clear that his speech is based on an underlying system of rules, that he has unconsciously made inductive generalizations which go beyond the specific utterances he has heard. Overregularizations and analogic forms have long been noted in child speech. When carefully studied they can reveal much of the child's developing grasp of the morphological devices of his language.

It is difficult, however, for the investigator to sit back and wait for the child to make such errors in speaking. Jean Berko (1958) has made it possible to gather such data quickly and easily in ingenious test in which little children are presented with nonsense words and asked to supply plural forms, change verb tense, and so on. A similar technique has been developed in the USSR by Bogoyavlenskiy (1957). Kernan and Blount have adapted this technique for use with Spanish-speaking children in Mexico (1966), and Ervin-Tripp and Miller have elaborated the technique for use with very young children (Miller & Ervin, 1964). All of the materials of these investigators are presented in Appendix 1.3.6, and the general technique could easily be adapted to special problems of interest in a given field language. Berko describes her technique as follows:

> In order to test for the child's use of morphological rules of different types and under varying phonological conditions, a number of nonsense words were made up, following the rules for possible sound combinations in English. Pictures to represent the nonsense words were then drawn on cards. There were 27 picture cards, and the pictures, which were highly colored, depicted objects, cartoon-like animals, and men performing various actions. . . . several actual words were also included. A text, omitting the desired form, was typed on each card. An example of the card test for the regular plural allomorph in /-z/ can be seen [below].
>
> . . . each child was . . . told that now he was going to look at some pictures. The experimenter would point to the picture and read the text. The child would supply the missing word, and the item he employed was noted phonemically.



THIS IS A WUG.

NOW THERE IS ANOTHER ONE.

THERE ARE TWO OF THEM.

THERE ARE TWO______.

As a warm-up, the experimenter should begin by presenting familiar objects and using real words. This will acquaint the child with the procedure, and will also provide necessary data on the child's use of the morphological features in question when speaking normally. The experience of Kernan and Blount in administering a Spanish form of the Berko test in Mexico is informative:

> In contrast to Berko, we experienced considerable difficulty in eliciting answers from subjects. For this reason, it was decided to precede each series of questions which tested for a particular grammatical category with an example question which used a real noun or verb. For example, before he was tested on the formation of plurals, each child was shown a picture of first one cat, and then two, and was told, "Este es un gato. Ahora hay otro. Hay dos de ellos. Hay dos ______." (This is a cat. Now there is another one. There are two of them. There are two ______.) This is a departure from Berko's procedure which was necessitated by the children's difficulty in understanding the task at hand. This may in part be explained by a difference in familiarity to testing situations of this kind. American middle-class children have probably been exposed to formal testing situations far more frequently than have Mexican children of the lower socio-economic class. We feel, however, that the use of examples did not affect the reliability of the test (1966, p. 3).

Adults should also be tested, in order to determine the end state towards which the children are progressing. If possible, a wider range of children should also be tested--perhaps all of the children in the sample (A-X). Kernan and Blount tested children between the ages of five and twelve, and found continuing morphological development beyond the age range of four to seven tested by Berko in the United States.

"Nonsense objects" can be used as well as pictures in such testing. Miller and Ervin-Tripp constructed a collection of pairs of novel wooden objects in longitudinal testing of extension of English plural morphemes. An important aspect of their testing was the repeated administration of the same items, a feature also included in our general research design.

> The texts were at first collected weekly . . . because of rapid change. [Collection began at about age two.] As the rate of change decreased and the fluency of the children increased, the frequency of text collection was gradually reduced, until texts were collected at two-month intervals, in two or three sets of closely spaced interviews totalling four or five hours. . . .
>
> The plural test consisted of 17 items. In each case a toy object or picture was shown, its name elicited, and then two were shown. "Here are two what?" Thus the test did not

> give the children the option of using a syntactical plural signal rather than a morphological one. The items included certain pairs in which nonsense items (wooden constructions) were given names which had the same final consonant as a familiar word (boy-kigh, block-bik, bed-pud, horse-tass, orange-bunge). Irregulars were foot, man, and house. The singular of the regular and nonsense words was offered by the investigator if it was not offered by the child. In the case of foot and man, however, the singular was not offered by the investigator. This procedure was followed in order to determine which form, e.g., foot or feet, was used by the child as the singular. Testing was stopped on items after they had been contrasted for several months (Miller & Ervin, 1964, p. 12).

Longitudinal testing of this sort in the field, using real words and analogous nonsense words, would provide a cross-linguistic check on Miller and Ervin-Tripp's finding that

> nearly always the contrast with familiar forms preceded the contrast with nonsense forms. . . . The average gap for boy vs. kigh was 2.4 months; for ball vs. kigh was the same; for block vs. bik the gap was 1.1 months; for cup vs. bik 1.5 months . . . . Thus the child who calls one cup by a different term than two cups might do the same with the nonsense toy bik in a month and a half (Miller & Ervin, 1964, p. 33).

Procedures of this sort can easily be adapted for use in the field. The selection of grammatical features to test will depend on the language, as will the construction of the nonsense words. If a native informant is available prior to departing for the field, some parts of the test can be designed in advance. However, note that a test such as that used by Berko (given in full in Appendix 1.3.6) cannot be translated wholesale into the field language. The distinctions chosen must be based on the particular language. For example, Berko tested for singular and plural. If the field language, however, also has a dual, the two wugs picture would not be sufficient: an additional, multi-wug picture would be needed. Or if the language has genders which determine the form of noun plurals, special nonsense pictures and words will be required, and the introductory sentences will have to indicate the gender of the object. (E.g., "Das ist ein Wug. Jetzt gibt es noch ein Wug. Es geben zwei von ihnen. Es geben zwei _____.")

Another set of eliciting procedures requires the child to repeat fairly lengthy material offered by the experimenter. The length of the material makes the task exceed immediate imitation span, thus revealing the child's productive system through the recoding which takes place. One such procedure is to tell the child a short story, perhaps accompanied by pictures, followed by the child's retelling of the story. A similar technique is to devise a simple game, unfamiliar to the child, and explain the game to him. He is then asked to explain the game to someone else. It would be of interest to vary the age of the target person, comparing explanations offered by the subject to a younger child, a friend of the same age, and an older child. (When the mother is present, a useful variant of this technique is to explain the game to the mother and have her convey it to the child. This may be an important tool for the elicitation of mothers' speech.)

Another useful eliciting technique is to ask a child to tell you a story. (Note if special narrative style is used--intonation, lexicon, formulae, etc.)

1.5. COMMUNICATIVE DEVELOPMENT

1.5.1. The Child's Lifespace

A number of sociolinguistic studies point to the decisive influence cultural factors exert on language development. Verbal ability as measured in a number of ways has been found to correlate with socioeconomic status and ethnic background (e.g. Bernstein, 1961a,b, 1962, 1964; Anastasi & de Jesús, 1953). It is generally assumed that these observed differences result from differences in the life experiences of children from different sociocultural backgrounds. Little, however, has been done to relate these findings to the actual cultural practices which may engender these differences.

Any account of the child's acquisition of communicative competence would be incomplete without some general investigation of the child's lifespace. Such an account should include a description of the child's physical environment and of the individuals who make up his network of interaction. For each of the 24 children we would like to have a description of: the child's range of movement; the amount and type of linguistic input he is exposed to; where and with whom he spends his time; and the range of human artifacts, fauna, and flora with which he comes in contact. The goal, then, is to establish typical daily routines for children A-X.

This information should be gleaned both from observation and from interview of the children and their parents. The investigator should begin as soon as possible to keep a daily diary of all of the settings in which he observes the children. The nature of the activity and the age, sex, and status of the individuals participating should be specified. Interviews of the parents or caretakers of the children will provide information about the children's cycles of activities when not under direct observation. We hope in this way to be able to establish a yearly cycle of activity for children of various ages and to determine the culturally defined categories of age-grading. For example, are weeks differentiated in such a way that a child characteristically engages in different activities on some days as opposed to others? What role, if any, do seasonal changes play in circumscribing the activities of children? Into what time units is the annual cycle divided, and what special events punctuate the cycle?

At some point during the field stay the investigator should devote some major part of a day (5-6 hours) to following each of the children and describing in detail the activities of the child for that

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Section 1.5.1 was written by Claudia Mitchell and Dan I. Slobin.

day. These data, along with the evidence gathered from interviews of both the child and his parents, should give some idea of what a composite day in the life of a child of a given age and culture is like.

If the society has formal education, part of the detailed observation should include classroom behavior of the school-age children under study. In so doing, the investigator should bear in mind the points raised in Section 3.4.4 (Formal Education), especially questions bearing on the role of speech, reading, and writing in school.

The following is a check-list of information which should be gathered in regard to the lifespace of each of the children.

I. Characteristics of Child's Household

A. Physical Setting (provide map and pictures).
   1. Is it made up of one building or several? (How many?)
   2. Are there room divisions? (How many?)
   3. What are the main functional areas of the dwelling space?
   4. Proximal relations of community
      a. Is the household a nuclear or extended family dwelling?
      b. Is it isolated or part of a compact village?
      c. Is the community rural or part of an urban center?
      d. Are the members of the community interacting individuals?
      e. What is the size of the community? (Obtain census data if available.)

B. Human Component
   1. Who are the individuals who make up the household? (Specify age, sex, relationship, status, occupation.)
   2. What is the child's relationship to each member of the household?
   3. Do all members of the household have equal access to the entire dwelling area?
   4. Are any members of the household, either by design or choice, generally or always confined to particular areas?
   5. Are there ever individuals present in the household who do not live there? If so:
      a. Who are they?
      b. How often do they visit?
      c. How much time do they spend there?
      d. What are their activities when they are present?
   6. How much time does the child spend in the household?
   7. Who else is present when the child is in the household?
   8. How much time do other members of the household spend there?

II. Caretaking

A. Which members of the household have something to do with the child? What? (Be specific.)
B. Who are the child's main caretakers? (Do older children become parent substitutes for subsequent children?)
C. What is the child's range of movement? (Is locomotion restriction attempted? Specify.)

III. Linguistic Input

A. Who talks to whom?
B. What topics are talked about?
C. Are children ever instructed to be silent? On the basis of topic? People present? Etc.
D. What settings are children freely admitted to?
E. Are children excluded from some settings?
F. Is language mastery ever a basis for the child's inclusion or exclusion from setting or conversation?
G. Are any topics avoided in the presence of children?
H. What are the settings in which the child is a passive onlooker? An active participant?
I. Who are the individuals with whom the child characteristically interacts? (Be specific.)
   1. What topics are discussed?
   2. What is the duration of the interaction?
   3. Is the child the main focus of attention?
J. Are metalinguistic comments ever directed to the child? By whom?

* * *

Besides focusing on individual children, questions such as those posed above can be turned around and applied to groups of children and settings in which they are found. The investigator should consider the following questions and suggestions in attempting to describe interaction networks of children of different ages:

1) Where do you find children of each age? In what settings are pre-school children found? No children? Etc.

2) How large are the groupings in each setting?

3) Do children spend their time in age-homogeneous groups? (Does this depend on the age of the child?)

4) Who interacts with the children, and what are they doing while children are present? What is the language input to children in these settings?

5) Study a specific setting for several days at the same time of day. Describe interactions in detail: who initiated interaction and how? Who received the interaction? What were the consequences? Notice if the same patterns are repeated but do not appear elsewhere.

6) Ask informants to tell you who young children talk to, and check this information against direct observation.

7) Once you have determined the nature of a given interaction network, try to get someone to violate the network--both as a test of your analysis, and in order to discover how violations are responded to.

1.5.2. Dialog between Children

In this section and the next (Parental Baby Talk), we wish to obtain recorded samples of the speech styles used in addressing children of different ages. Here we are concerned with situations in which the interlocuter is an older child, whereas in the case of baby talk it is the child's mother. In this section we are also concerned with obtaining recorded samples of natural dialog between children of various ages.

The most convenient time for the collection of these data is during the all-day behavioral sample of each child described in the preceding section. On the day that a given child is followed about by the investigator, opportunities for the recording of natural conversation between children should be exploited. No doubt, many additional opportunities will arise in the course of the field stay.

In addition to the recorded samples, which will be necessary for an adequate analysis of speech style directed to children of various ages, written notes on the form and content of interchild dialog will be of value. What do children of different ages discuss, argue about, play at? In taking these notes, the investigator should bear in mind the many theoretical issues and research suggestions raised in Section 3.4.1, The Relation of Linguistic to Social Categories, and in Section 3.5, Usage and Styles.

Section 1.5.2 was written by Dan I. Slobin.

1.5.3. Parental Baby Talk

Baby talk seems to be a feature of most, if not all, natural languages. Here the term refers to that special form of language that is used primarily for talking to young children and is not the normal adult usage of the language. Baby talk is a conventionalized aspect of language which is learned and culturally transmitted as is the rest of language. If baby talk is found in a child's own speech, it has generally been acquired from an older member of the speech community, and is seldom invented by the child himself.

As indicated in column XII of Table 2, we wish to collect recorded samples of mother's speech to children A-F, Q, R, W, and X. The older children are included as a control for the identification of special features of maternal speech directed to very young children. (Although only mothers are mentioned here, the heading of parental baby talk indicates that it would be of value to record the speech of fathers to children as well.) It would be best to have a standard setting, such as asking the mother to give certain instructions to the child, describe an event to him, tell him a story, and so on. If possible, some sections of the tape should contain stretches of the mother's speech alone, allowing for later "blind" analysis of the tape, with no cue from the child's voice as to the age of the child being addressed.

There are three broad areas to be investigated and described concerning the use of baby talk by any linguistic group: the linguistic features of baby talk; the social context in which baby talk occurs; and the belief system of the group concerning baby talk and its use.

Linguistic Features

Before any analysis can be done of the linguistic forms, the forms themselves must of course be elicited. Informants, when asked for terms that differ from the usual adult terms and that are used primarily with children, may deny that any such baby terms exist. It may therefore be necessary to seek the use of baby talk in ongoing linguistic interaction. Furthermore, it will be necessary to be thoroughly conversant with the normal adult language so that baby words may be recognized as such. Once a few baby words have been discovered it should be possible to elicit others in an interview with an adult by presenting him with the terms you have recorded and contrasting them with normal adult usage. This should provide a clear example to the informant of the kind of data you are attempting to obtain. Another way to elicit baby terms is to ask the adult informant how children say certain words that are in the lexical domains in which other languages often have baby terms. This may elicit some baby words from

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Section 1.5.3 was written by Keith Kernan.

those adults who assume that the baby words in their language are actually the way all babies say things.

Phonology. Baby words should be transcribed phonetically. A gloss of the term should be given and the normal adult form should also be recorded phonetically. The adult forms and baby-word forms should then be contrasted to determine what type of differences exist between them. The following phonological features are common to baby talk as contrasted to normal adult usage in a number of languages: simplification of consonant clusters; replacement of velars (e.g. "g") by apicals (e.g. "d"); replacement of an "r" by another consonant; some kind of interchange among affricates, velars, and stops; distant nasal assimilation; loss of unstressed syllables; small selection of vowels; a morpheme canonical form of CVC or CVC(C)V.

Grammar. The grammar of baby talk may differ from that of adult language in both form and function. On the one hand, baby talk may make use of the same grammatical categories and convey the same type of information that the adult language does, but in a different manner; plurality for example, may be expressed by means of reduplication whereas it is expressed in the adult language by means of affixation. Baby talk, on the other hand, may convey information absent in the adult language and make use of grammatical categories that the adult language does not employ; for example, a diminutive form that is totally lacking in normal usage may be present in the baby talk. More commonly, baby talk ignores grammatical distinctions made in the adult language and fails to convey grammatical information (such as tense) that is conveyed by adult language.

Grammatical features common to baby talk in a number of languages include: a diminutive form, reduplication, absence of inflectional affixes, the presence of a special baby talk affix.

Lexicon. The words of baby talk seem to be concentrated more in some domains than in others. This is in part the result of the small child's lack of contact with parts of his cultural environment and in part the result of the emphasis given by adults to the particular domains of the culture they deem important and therefore present to the infant early in his life. Care should be taken to determine whether the baby words have the same range of reference as the adult words they resemble.

Among the most common topics for which lexical items occur in the baby talk of a number of languages are: kin names, nicknames, body parts, body functions, basic qualities (e.g. good, bad, little), names of animals, nursery games, toys, imperatives for common actions.

Intonational and Paralinguistic Features. Paralinguistic and intonational features may mark baby talk as such. Because these features might not be presented by an adult informant in an interview situation, they should be recorded from ongoing linguistic behavior in which baby talk is being used. Some common intonational features that accompany the use of baby talk in a number of languages are: higher over-all pitch, preference for certain contour patterns, and more or less volume. Paralinguistic features might include facial expressions, physical closeness to the baby, and the like.

Social Context

Social context includes both the participants and the setting or situation and each should be described fully for every particular speech event involving baby talk.

The participants in the speech event include the sender, the receiver, and the audience. It is not enough simply to identify by name the individuals who are filling each of these positions. Each participant in a speech situation has a particular role to play vis-à-vis the other participants, and an attempt should be made to determine what this role is for each speech situation in which baby talk is used. For this, it will be necessary to have a good deal of background information, which may be gathered either before or after the speech event itself is recorded. Such information should include as many as possible of the positions in society, or socially defined statuses that the participant occupies. For example, it is not enough to say that Mr. Smith, a forty-two-year-old man spoke baby talk to his son. Mr. Smith's relevant statuses as defined by society must be noted. He may be classified, for example, as an elder who is an important person in his community and is expected to act with dignity at all times. It is important to record, therefore, not only the participants' roles vis-à-vis each other, but also the statuses each holds in the wider cultural context.

The setting not only involves such information as time and place but should also include the native definition of the situation. That is to say, is it merely an informal speech event, or is it something that is defined as a particular kind of social situation by the native speakers themselves? What kinds of meaningful situations exist in any culture must be empirically discovered for each society. Native terms for situations and native interpretations of situations in response to questions by the investigator may serve as guides.

Baby talk has been defined above rather narrowly, and in any culture terms that are primarily used for speaking to young children may also be used in other situations, such as with animals, supernatural beings, between lovers, and the like. It may be, also, that only a small and specific part of baby talk is extended into other areas. All such extended uses should be thoroughly investigated.

Children may imitate the adult use of baby talk when speaking to other small children. This imitative behavior will often provide important clues to the child's impressions of and competence with adult speech. (See Section 1.5.2, above.)

Belief System

It is important to investigate not only what people do with baby talk but also what they think about it and what they think they are doing with it. It is important to ask what the purpose of baby talk is considered to be: Is it to facilitate teaching the child to speak? Is it easier for the child to hear? Is it an imitation of child speech? Is it an expression of affection? Does baby talk inhibit the child's acquisition of normal speech? At what age should children stop using baby talk? What kinds of sanctions should be applied to force the child to stop using baby talk? Are adults embarrassed about using baby talk? and so on.

Some of these questions may be asked directly of adult informants (see Section 1.6, below), but others, such as whether adults are embarrassed about using baby talk, may have to be discovered by observation of situations in which baby talk is being used. Data obtained from observing the use of baby talk may then be contrasted with what adults have said about its use.

In addition, recordings of adults using baby talk may be played back to them and information gathered on their reactions; for example, surprise, embarrassment, and so on. Hypothetical situations may be given or tape recordings of baby talk played back to informants, who may then be questioned about the situation, the participants, and the setting and asked to give their interpretations and their attitudes concerning it. The reaction of informants to accounts of baby-talk practices in other cultures may be obtained to discover their attitudes concerning its use.

(Additional information on baby talk can be found in Casagrande [1948] and Ferguson [1956, 1964].)

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1.5.4. Communicative Routines

Because of their brevity and surface predictability, some kinds of communicative routines are easy to identify. Routines mean utterances which are predictable or contain predictable segments. They involve very small classes of alternatives. They are predictable from the social situation, and include two main types, prescribed features known to participants, and normal features of which participants are not usually aware. Since the former are easier to identify, we will treat them here, and reserve the latter for Section 3.5.3, The Analysis of Natural Conversation.

1) Situation boundary markers. Within the daily cycle, there are routines marking changes of locale, activity, or participants. They are similar to rites of passage in the life cycle, making clear to everyone that a new phase has commenced. Examples are greetings, farewells, hosts' welcomes, pre- and post-prandial comments like "bon appétit" or grace, remarks proper to entering or leaving particular locales.

2) Accident markers. Unpredictable events like sneezes, belching, tripping, or dropping something may be followed by routines. The actor or some particular other may be expected to perform the routine.

3) Apologies are comments pertaining to violations of social rules. They may occur prior to violation, in the form of asking permission, or afterwards. In the latter case they might overlap with accident markers. One can conceive that both might occur for the same event--e.g. an apology by a sneezer, and "salud" by his companion.

4) Thanks refers to verbal compensation when goods or services are offered or received from another.

5) Requests refers to complex functional category, all those utterances which have the effect of eliciting goods and services from others. In English, not all requests contain routines like "please," "would you mind . . ." "could you . . ." Requests may be more differentiated according to the social category of the addressee than other forms, so they provide a nice indicator of social learning.

6) Gesture-word games. While purely verbal games are discussed in Section 3.5.2, we may include in routines those classes of utterances which occur only in the situation of a stereotyped gesture or performance. For instance, in European cultures, babies receive such gesture-word games from adults. Some, like "cou-cou" or "peek-a-boo,"

Section 1.5.4 was written by Susan M. Ervin-Tripp.

start as passive audience games for the child, but later children will act and speak, or act on command of the word. "Bye-bye" and waving, "pat-a-cake" and clapping have the same relation. While the words may for the child function as names of the activity, there is a difference from other activity names in that one rarely occurs without the other, at least in the adult performance.

Many of these categories can require the inclusion of address terms. Thus in French one does not use greetings or farewells without some address term. For this reason, routines may provide a context in which appropriate terms of address are acquired and can be studied.

Some Problems to Study

Since the categories above have different properties, we would not expect them to be mastered at the same age. Some considerations to take into account in doing a study of these forms are these:

1) Forms requiring merely that the child respond to a routine initiated by someone else can begin as early as any comprehension of language. So waving in response to "bye-bye" could be found quite early.

2) Reciprocal routines, where two parties say the same thing, should appear early since they can be cued by mimicry. For this reason situation boundary markers might appear earlier than apologies or thanks, provided they are reciprocal. So when an adult says "hello" the child can too.

3) One might expect some forms of error to be common. For example, non-reciprocal "thank you" might be interpreted by the child as merely a label for exchanging things. If this is the case, we might find him using it when he gives objects, not just when he receives them. Also, the form might decline in frequency when the frequency of labeling declines, in the third year.

4) If selection of the routine is based on complex social stimuli, the routine should be learned late. Thus, we might expect apologies to appear later than greetings.

5) If the categories of events requiring the routine are complex, we might expect selective usage. For example, in Japanese apologies are differentiated in a complex fashion. Some classes of infraction may not elicit apologies from children at first, and there may be overgeneralization of the routines. There are interesting semantic problems in studying these overgeneralizations.

6) Short isolated phrases like "please" should be easier to learn as routines than syntactically bound utterance segments like "can I . . ."

and "may I . . ." It would be valuable to locate instances where there are functionally equivalent alternatives with different linguistic properties, to see which is learned earlier, and which is used more often in explicit instruction.

7) Where there is evidence of social differentiation in frequency of routines with different addressees, it would be useful to check instructional practices to see if they support the difference. For instance, if a child says "please" less often to his age-mates than seniors, is this because he is more often reprimanded for omission when addressing seniors?

8) A variety of instructional methods are likely to be observable. Routines being fixed, like lexical units, they can be taught either by mimicry ("say 'please'"), correction of deviant or omitted routines, or simply by letting the child mimic whatever occurs naturally, without any special tuition.

Methods

We suggest four routes to obtaining data on routines, including all the children in the sample.

1) Notice instructional behavior during other observational sessions. Even with babies in the babbling stage, there may be instruction in simple gesture games, waving, and so on.

2) Include questions about speech etiquette in interviews.

3) Note the appearance of repeated forms at fixed points in social situations. The analyst's problems in identifying such forms in adult usage, or in the usage of the older children, may suggest some hypotheses to test in the children's acquisition.

4) Identify situational slots, and look for regularities in verbal or gestural behavior in these situations. It might be desirable to find adults or older children as points to begin such a study. However, just as in the case of vocabulary or grammatico-semantic categories like negation the match of semantic category and verbal representation may not be the same as for adults at first, one should look for any regularities of behavior in these situations, whether or not they match the adult routine. For instance, whereas adults in a family may say "goodnight" before retiring, children may kiss or wave. This difference may or may not be a result of deliberate instruction of children. Waving might arise from generalization from farewells. On the other hand, caretakers may invent boundary markers to help control children's activities.

Sampling

Once an analysis is made of the routines employed in the adult culture, one should try to collect evidence from each of the children A-X for the appropriate situation. Some, like accidental events, may not be possible to observe easily in the children explicitly selected for the sample. However, if one is alert to the categories, in the course of the year some other children in the same age bracket may substitute. Where the situation elicits the action, as in thanks and the situation boundary markers, one can simply sample those situations on purpose.

1.6. LINGUISTIC BELIEF SYSTEMS

Anthropologists have traditionally made a distinction between what people do, what they say they do, and what they think they should do. Most of this manual is devoted to discovering what people do when learning their language as children and what they do as adults in the presence of children learning languages. In this section we address ourselves to the task of discovering what adults report that they and their children do in the language-learning situation, and what they say they should do to assure rapid and complete language learning on the part of their children.

This information is best obtained, of course, in an interview situation. Before beginning to conduct interviews, the investigator should carefully read the sections on the use of interpreters and interviewing of informants in the Field guide for a study of socialization (Whiting et al., 1966, pp. 156-164)--a volume which each investigator should have with him in the field.

For comparative purposes, we suggest a specific list of interview questions below. This should be considered a minimal list, and all researchers should ask at least these questions. It is by no means a complete list, however, and additional questions will undoubtedly occur to the investigator while in the field. Neither is it necessary for the questions to be put to the informants in the exact form presented here. This list is designed to serve more as a check list for the investigator than as an interview schedule to be strictly followed. (See Section 2.3 for additional cautions on the use of native informants, assistants, and interpreters.)

We suggest that this section of the study be carried out at the beginning of the stay for a number of reasons: It is one of the easier projects to do. It will allow the researcher to become acquainted with a number of informants and give him some idea about which individuals might be most useful and helpful in later more detailed work. It will point out areas of interest unique to the particular culture which the investigator will wish to explore later. It will provide an opportunity to learn the terminology connected with language and speech. And, perhaps more important, it will introduce the investigator to the community and give its members some idea of what he is doing there.

A beginning step in the investigation of a people's belief system concerning language, perhaps, should be a familiarization on the part of the investigator with the metalanguage used in the culture for discussing speech behavior. Concepts equivalent to such English words as "word," "crying," "cooing," "babbling," etc. should be learned and

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Section 1.6 was written by Keith Kernan.

clearly understood. This might be best done with the help of a bilingual assistant who is clearly aware of the investigator's aims and interests.

Beliefs regarding language learning should not be collected from a single segment of the population, such as parents of young children; rather, some sort of selection procedure should be used which will assure representation in the sample of all culturally relevant groups. Answers should be collected, for example, from men as well as women, from adults as well as children, from parents as well as couples without children, from parents with older children as well as parents with younger children, etc. (As a minimal sample, the mothers of children A-F, M, N, Q, R, W, and X should be interviewed, as indicated in Table 2.) In addition to such obvious and easily identifiable categories of individuals as those just mentioned, there may be additional groups which are more difficult to identify and which are formed by criteria which may be unique to the particular culture being investigated. Social class, however defined in the minds of the people of the culture, might be an important determiner of attitudes concerning beliefs about language acquisition, for example.

Since group membership may be an important factor in beliefs concerning language acquisition, it will be necessary to record information concerning each informant questioned. Some of this information will undoubtedly be determined by the types of relevant groups which exist in the culture. Whether an individual is a member of an organized religion, for example, may be important in some cultures and not in others. For this reason, it would seem wise to record as much biographical data as possible for each informant at the beginning of the project at least. Checking answers to questions against biographical data while in the field may lead to the discovery of interesting covariations which will enable the formation of preliminary hypotheses and point to the uselessness of some biographical data which had been collected in the past and the necessity for obtaining other more relevant facts.

In addition to culturally specific facts such as caste membership which might be suspected by the investigator to have possible relevance in determining beliefs about language acquisition, a minimal amount of biographical information would include the following:

1. Age
2. Sex
3. Occupation
4. Socioeconomic status as defined by the criteria of the culture itself
5. Monolingual or multilingual
   (non-native languages spoken)
6. Number of children
7. Sex of children
8. Ages of children

9. Amount and type of education
10. Place of residence
11. Number of people in household
12. Relationship of other individuals in household to the informant
13. Number of siblings
14. Age of siblings
15. Sex of siblings
16. Age of parents
17. Education of parents
18. Occupation of parents
19. Socioeconomic status of parents
20. Place of residence of parents
21. Languages spoken by parents

Suggested Minimal Interview Concerning Beliefs about Language Acquisition and Use:

A. Pre-Verbal Vocal Behavior

1. At what age does an infant begin to make sounds?
2. Can you describe these sounds?
3. Does he make these sounds at any particular time of day?
4. Does he make these sounds in any particular situations?
5. Does he make different sounds in different situations?
6. Why does he make these sounds?
7. Does the child mean anything by these sounds?
8. Is he trying to speak when he makes these sounds?
9. Do you understand what he means or wants when he makes these sounds?
10. Do all babies make the same sounds before they are able to speak?
11. Can anyone at all understand what the baby wants or means when he makes these sounds?
12. Do babies understand adult speech before they learn to talk?
13. Can babies think before they learn to speak?
14. Do babies imitate adult sounds?
15. At what age does this imitation begin?
16. What is the easiest sound for a baby to imitate?
17. Is this sound learned first?
18. What is the most difficult sound for a baby to imitate?
19. Is this sound learned last?
20. Would a baby learn how to speak if no one ever talked to him?
21. Do you speak in a special way with babies (e.g., louder, softer, faster, etc.)?
22. Does anyone speak in a special way with babies?
23. Who doesn't speak in a special way with babies?
24. Do you use special words with babies?
25. What are these special words?

26. Are these words easier for the baby to understand?
27. Does the use of these words make it easier for the baby to learn to speak?
28. Does the use of these words retard the baby's learning adult speech?
29. At what age is the child when you stop talking to him like this?

B. The Acquisition of Speech

1. How does a child learn to speak? Must he be taught?
2. Do children learn to speak by hearing others and imitating them?
3. What is the first word a child usually learns to speak?
4. At about what age does he learn this word?
5. Does he use it correctly?
6. Does it mean the same thing to him as it does to adults?
7. If not, what did it mean to him and how did he use it incorrectly?
8. At what age do children begin to put words together?
9. Do they put them together correctly?
10. What kinds of mistakes do children make in the sounds of words?
11. What kinds of mistakes do children make in putting words together to form sentences?
12. Do all children make mistakes in sounds and putting words together?
13. Do all children make the same mistakes in sounds and putting words together?
14. Do boys or girls make more mistakes when learning to speak?
15. Do boys or girls learn to speak earlier?
16. Do any children learn to speak earlier than others?
17. Why do some children learn to speak earlier than others?
18. Is it beneficial to the child to learn to speak early?
19. Is there anything that can be done to make a child learn to speak earlier than usual?
20. From whom does the child learn most of his language?
21. Is it better that the child learn his language from some people than from others?
22. Do children learn many words from other children?
23. What kinds of words do children learn from other children?
24. Do children ever invent new words?
25. Are the words that children invent ever used by other people?
26. Do children ever ask other people the names of things?
27. At what age do children begin to ask the names of things?
28. Whom do children usually ask the names of things?
29. What kinds of things do children usually ask to be named?
30. Do children ever ask the meaning of words?

31. Whom do children usually ask the meaning of words?
32. How do you think a child should be answered when he asks the meaning of a word? Can you give me an example?
33. What kinds of mistakes do children make in speaking? Examples?
34. Should a child be corrected when he mispronounces a word, makes a mistake in putting words together, or calls something by the wrong name?
35. How should he be corrected?
36. Should anyone who hears a child make a mistake correct the child?
37. From whom do children learn "not nice" words?
38. What should be done when a child uses a "not nice" word?
39. Do children learn to speak better or more correctly by going to school?
40. Do you think there are many times when children should not talk?
41. Why do you think it is wrong for children to speak at these times?
42. How should children be taught not to talk at these times?
43. Should children speak differently to adults than to other children? If so, in what way and how is the child taught this?
44. How do you feel when your child makes a mistake in his speech in the presence of adults? Are you embarrassed?
45. Do you think it is important for a child to learn to speak well?
46. If so, why is it important for a child to learn to speak well?
47. Is it more important for some children to be able to speak well than for others?
48. Is it more important for boys or for girls to be able to speak well?
49. Do children have any word games or special languages? Can you describe them?
50. At what age do children begin to speak like adults and not make mistakes?
51. Do all children learn to speak like adults at about the same time?

C. Speech Behavior and Ability

1. Are some people better speakers than others?
2. In what way are they better speakers?
3. How did they become better speakers?
4. Are there any advantages to being a good speaker?
5. Who do you know that's a good speaker?
6. Are some people poorer speakers than most people?
7. In what way are they poorer speakers?
8. Are there any disadvantages to being a poor speaker?
9. Who do you know that's a poor speaker?
10. Do you know anyone who makes mistakes in his speech or sounds strange when he speaks (i.e., pathologies)?

11. What causes this pathology?
12. Do you have a term for this strange kind of speech or for people who speak like this?
13. Do you know of any other kinds of mistakes in speech or strange sounding speech (i.e., other speech pathologies)? What do you call them?
14. What causes these speech pathologies?
15. Can anything be done to correct these speech pathologies?
16. Are some people more likely to have any of these speech pathologies than other people?
17. Do you know anyone who speaks more than one language?
18. What are the languages they speak?
19. Is it advantageous or disadvantageous to be able to speak more than one language? In what way?
20. Do you think it's a good idea for children to learn to speak more than one language? Why?
21. What additional languages do you think children should learn to speak? Why?
22. At what age should children learn to speak another language?
23. Does learning a second language hinder or improve ability with the first language?
24. Is it easier for some people to learn to speak another language than it is for other people? Why?
25. Are some languages easier for people, who already speak your language, to learn? Why?

D. Language in General

1. How do you think your language began?
2. Why are languages different?
3. Are some languages easier to speak than others? Why?
4. Are some languages better sounding than others?
5. Can one say things in one language that couldn't be said in another language?
6. What do you think people would be like if there were no languages?
7. Do you think it would be a good idea if everyone spoke the same language? Why?
8. What language should that be?
9. Do animals have any kind of a language? Which animals?
10. Can animals understand human language?
11. Can humans understand animal languages?
12. Is your language changing?
13. In what way is your language changing?
14. Do you think it is good or bad that your language is changing?
15. Where do new words come from?

1.7. NOTES AND QUERIES FOR OBSERVATION

What follows is a scattered selection of issues, questions, and reminders which the investigator should try to keep at the top of his mind. This section should be scanned every few days, and the entire Manual should be scanned every few weeks. The investigator should faithfully keep a daily journal, in which he includes not only problems raised in the Manual, but comments about his own mood, the weather, the social climate, and so on--such variables may have an important effect upon the scientific observations. (See discussion of daily log in the Whiting et al. Field guide [1966, p. 166].)

Recording

Do not be seduced by the ease of tape recording vast amounts of data. Remember: it will take at least as long to listen to a tape as it did to record it, and much longer to analyze or transcribe it!

Clean and lubricate the tape heads about once a week, and demagnetize the tape heads (if required by the type of machine) about once a month.

Observe Children

What devices do children have for initiating information exchanges--e.g. tugging, turning face, using openers like "do you know what?" Whom does the child address?

Do children know proverbs, riddles, poems, chants, songs, prayers, etc.? How is musical development related to language development? Do children play musical instruments? How well can children of different ages sing back a melody or beat back a rhythm? Do the children dance? Is there musical training? Are people expected to be creative musically? To appreciate music? Are there formal musical performances? Do children go to them?

Watch children play. What do they argue about? Who wins and why? Do they argue about the rules of the game? Is winning ever related to verbal skills? Try to observe children playing at adult roles as a means of determining their notions of adult speech styles and role behaviors.

What chores are done by children of various ages and sexes? What are children expected to be able to do? To understand?

Watch for cases of children using baby talk.

Section 1.7 was written by Dan I. Slobin.

Pay special attention to late-occurring errors, as these reveal points of special difficulty in language acquisition.

How do children categorize other people in terms of variables such as age, status, sex, relationship, etc.?

Observe Adults Relating to Children

Where are little children carried? If on someone's back, does the child face forward, and can vocal interaction occur?

What is the physical distance between speakers and listeners? Is this adjusted to the age and height of the listener? Where do adults stand in addressing children of different ages? Do they attempt to establish eye contact?

What devices do adults use for getting a child's attention? How is a child called when he is out of sight? When he is within sight but out of reach? When he is within reach?

How is a child sent to get something?

How does an adult stop a child from doing something? How is a child treated if he interrupts a conversation between adults? How is a child scolded? Threatened? (What is the lexicon for verbal punishment?) Is praise or blame verbally administered by adults to children?

What language modeling behavior is structured specifically for children? (E.g. fairy tales containing stylistic emphasis and repetition, rhymes, chants, instructional materials, etc.). Do adults read to children? Tell them stories?

How is reading taught, and who teaches it? What are the attitudes of children and parents towards learning to read and towards reading?

Pay special attention to adults' responses to children's speech. At what age does speech become an object of explicit correction? Up until what age do adults correct a child's speech? What aspects of speech are corrected at various ages? How do children respond to speech corrections?

What are children of different ages expected to be able to give verbal accounts of? (E.g. "What did you do in school today?" "What did you see at the circus?") Do children take part in dinner-table conversation? Is there any special time or place for dialog between adults and children?

How are children with deviant language or language deficiency treated? How are the deaf treated? How are the blind treated?

Language

What is the native terminology for language, speech, speech acts, etc.? Is there a term for stuttering? (Does stuttering occur?) Are other speech disturbances labeled?

Be alert to the use of special styles of speaking at all times.

If there are children's books, what is the style and content of such books?

Pay special attention to address forms and third person reference (pronouns, names, kin terms, etc.).

Are there word games, puns, riddles, limericks, etc.?

Social Structure

Observe sex-linked interaction in the community in order to determine the role played by your own sex in interacting with various categories of people.

What role does birth order play in the society? Are special privileges and/or burdens dependent upon birth order?

What settings are children admitted to or excluded from on the basis of language mastery?

What ritual and religious events occur in the community? Who participates? What is done? How are children initiated into religious rites?

Linguistic Exercises

Do a close phonetic transcription of a text, pushing your phonetic skills to the limit to force attention to details. (This should be done about four months after arrival in the field.)

Ask natives to teach you proper speech etiquette for interacting with various kinds of people.

Try to get children to teach you the language, and to help you understand the speech of other children.

Present native informants with sentences uttered by children and ask them to say each sentence so it sounds right (or some such instruction). This should give you some information about the systematic regularities in the child's language which are deviant from the adult language, and some general notions of areas of difficulty in the language acquisition process.

Go through a published grammar of the language with a native informant and have him comment on it in the light of actual usage.

Learn songs, poems, chants, etc.

Alert natives to the variables you are interest in, and see what sorts of data they bring you.

Dell Hymes' Questions

(The following questions were posed by Dell Hymes in his paper, "Linguistic aspects of studying personality cross-culturally" [1960], and were among the original stimuli for the construction of this field manual.)

> Societies may differ not only in the age at which children typically acquire speech, but also in the context of its acquisition. For any society, one would want answers to such questions as: When is the child considered capable of understanding speech? (Among the Tlingit, "when the infant is but a few months old the mother talks to him, tells him moral tales, 'trains him'"). Is acquisition of speech accompanied by pressure, or treated as something that comes in due course? Are there special word games or speech patterns for teaching children? If there is pressure, at what stage of psychosexual development is the pressure applied? When are other socialization pressures applied, before or after the acquisition of speech? Various writings make clear that pressure, deprivation, and overprotection may variously induce speech defects or the preservation of infantile speech habits. . . .
>
> Other questions: to what extent is a child rewarded by verbal praise, in contrast to material rewards such as candy, or physical affection? To what extent is the child punished by verbal reprimand, as opposed to deprivation, or physical pain? What is the conception of proper speech behavior on the part of the child, relative to particular persons and behavior settings? Are a child's questions about words and meanings welcomed or rebuffed? Overall, is a child allowed much or little oral gratification through speech? Is a child encouraged, discouraged, or ignored in efforts to find satisfaction in speech play? What is the proportion of speech activity to communication by other means, such as gestures, on the part of the child?
>
> Are there special settings for verbal instruction of children? If there are, how frequent and with what personnel, and about what topics? Is the instruction conventionalized in content as are proverbs and myths, or only in theme? Is the tone of instruction categorical (as among many American Indian groups) or not (as in West Africa)? Is sex involved? . . .

PART TWO

METHODOLOGICAL FACTORS

2.1. CONTRASTIVE ANALYSIS

On arriving at a field site, there are a few heuristic devices investigators can use to help them identify the most important speech varieties, and on the basis of these varieties, the aspects of the social structure which they must describe.

Members of different speech groups or individuals in different speech situations may change their speech in a variety of ways: (1) topics or functions of interaction are likely to be changed; (2) linguistic codes for representing the same functions may be changed; (3) linguistic features organized as a code may differ; and (4) vocal signals may be altered. Sources for further detailed reading are given below in this section. Dell Hymes' Language in culture and society (1964) contains pertinent material in Parts V and VII, and Shuy's Social dialects and language learning (1964) includes relevant articles by Bailey, Labov, and Stewart.

Contrastive analysis is important for this project because it is necessary to identify linguistic contrasts in order to know whether and when children begin to produce stylistic shifts. They may of course use style shifting which is not similar to adult shifting; in such a case an analysis of child tapes similar to the analysis of the adult tapes described below will be necessary. In addition to a contrastive analysis of the speech varieties mastered by children at various ages, it is important to understand which varieties are intelligible to them, and how the speech varieties known to them are evaluated. Both comprehension and evaluative norms must develop with age, and possibly there are some sharp changes with formal training. These points are discussed later in this section.

2.1.1. Methods

After a few months in the field, the investigator will be able to observe on his own whether there are gross differences in speech between certain speakers, addressees, situations. To begin systematic contrastive studies, there might be two starting points. One might be

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Section 2.1 was written by Susan M. Ervin-Tripp.

to start with some general informant work. Later informant interviews of course would be necessary to refine this information. The purpose of the earlier work is the identification of some gross contrasts which can help inform observations. For example, ask: "Can you tell if your wife is talking to the baby or to your older son, even if you can't see them?" "Can you tell if she is talking to a man or to a woman?" These questions are based on the assumption that age and sex of addressee are likely to be factors influencing speech in most societies. (See the sample questionnaire in Section 1.6 for further instances.)

The data obtained from questionnaires of this sort have value (1) to help identify some social comparisons one must be sure to include in observations; and (2) to give indications of the stereotypes about social variations in speech.

We know that such reports by informants give information about only a small fraction of actual variation in speech. However, they will suggest some starting points for observation. Formal observations should include following the same speaker through a variety of situations in which there are different topics, different settings, and different addressees, as suggested in Section 1.5.1. One should be sure to include the comparisons suggested by the interview comments as so marked that even native speakers notice them.

Thus informant work and observation are both places to begin studying speech variation. In the next phase of the study, informants can act as listeners. Two tape recorders are linked by a patch cord to allow recording on a new tape of selections from the field recording. Then the natural recordings are edited to remove topical clues, proper names, and references which can reveal the speech situation. The informant should listen to the tape in order to try to identify the setting and addressee. He may also be able to specify when he could make the identification and may even notice what the marker was.

Tapes successfully recognized by adults can be played to children of appropriate characteristics. In this way one can find when children learn to recognize differences in speech in different settings or to different addressees, even if they do not themselves switch styles. (See Section 3.5.1, The Acquisition of Usage Patterns.)

The next task is to identify the linguistic differences between these tapes. In part this may be done after the study is completed, with the aid of a linguist. However, there are some advantages to working in the field on the task of identifying distinctive linguistic markers. For example, removing from a tape all but a single linguistic difference can be used as a test for which markers are most important.

2.1.2. Style vs. Speaker

Contrastive analysis is possible for the speech of two different speakers or for the speech of the same speaker in two different situations. There are some situations which allow for style switching (or for language switching) and therefore these situations are not appropriate for definitional purposes. If one knows the culture well enough, one may be able to predict the circumstances under which even this switching will occur.

Both types of contrast will prove relevant in this study. For example, we want to know whether men and women have different speech, since if they do we will want to be able to find out how children's speech relates to the two norms and how the differentiation is reinforced. But we also want to know if men speak differently when addressing men and when addressing women, and whether these differences show up in children's speech. The first is a contrast between speakers, the second between styles.

While the same types of contrasts can exist in both of these cases, there is a difference between them. The different styles co-exist in a single speaker, and there are therefore some pressures towards merger of systems. For example, at the phonetic, functional, and semantic level, it is difficult for a single speaker to maintain two sets of categories that are nearly identical but not quite. The two tend to merge. In the extreme case, as Gumperz (1967) has found, the differences may be extremely minor, for bilinguals who have spoken with other bilinguals over the centuries.

Thus contrasts may be relatively few for style differences. The two systems tend to have a common core, with merely a few variables which mark style switching. The contrast between different speakers will tend to be reduced in a similar way, if the speakers must interact with each other often. For instance, men's and women's speech must be similar in many ways since each must understand the other. They must have a common core grammar since the rules for production and comprehension exist in the same persons and there are no "monolinguals." In such cases there may merely be different phonetic realization rules or other low-level differences.

Where some groups occupy desirable statuses and there is emulation, style shifts may be related to speaker differences. Thus Labov (1966) has suggested three levels of relationship depending on conscious awareness of group differences and whether style shifts are apparent. Indicators are contrasted features which are unconscious, and define group membership but are not used in style shifting. Markers do influence style shifting so that in the more conscious and careful style the normative version is used. Stereotypes are conscious and subject to overt comment and stigma.

We shall confine our discussion to the last three types of contrast, which we must assume can be revealed with topic and function held constant.

2.1.3. Functional Realization

In American society, there is a difference in the way requests are formulated depending on the relation of speaker and addressee and whether the request is considered part of the normal relation of the two, or extra. Direct imperatives tend to be directed downward in rank, for example. A simple way to obtain such data in another society is to make some simple categories like "bringing objects," "supplying simple information." One begins to see fairly quickly whether there is a difference in the formula used, according to the speaker or according to the setting or addressee. Requests are the easiest function to identify, since they are defined as any speech resulting in action on behalf of the speaker by the other party. Greetings and other routines would also be easy to study. (See Section 1.5.4, Communicative Routines.)

2.1.4. Linguistic Contrasts

The purpose of a linguistic contrastive analysis is to define as variables those things which are not alike and to characterize all else as alike. It is obviously impossible to do a complete linguistic analysis, but any category described for one system should be described for the other. It is important to try to locate the contrasts that are sufficiently frequent in texts to permit their practical use as criteria for identifying shifting in children. Each instance should be analyzed for its systematic implications, not given merely as an isolated example, and in each case the equivalent rule in the other system should be analyzed. Enough phonetic detail should be given to define phonetic realization rules, where there are likely to be many style variables.

2.1.4.1. Phonological Contrasts

The easiest clue to a difference in the phonological systems is comparison of realization rules for the same morphemes. Clever introduction of topics while eliciting comparison tapes can help in locating the same morphemes in contrasted texts. Otherwise, one may have to make judgments that the morphemes are sufficiently similar in phonemic structure to permit one to reach conclusions without having the identical forms.

1) Two systems may differ in the phonetic features they use. One system may have a set of palatalized consonants but the other not, so that in the simpler system the other's "palatalized forms" are homonymous with the non-palatalized. In "Diglossia" (1959), Ferguson describes cases in high and low styles which differ in that the low system is simpler, and includes a subset of the phonemes in the high system.

2) One system may have a special set of allophonic changes which the other does not have. These may introduce sounds or features not present in the other.

3) A particular item may be present phonemically in one system and not in the other, as in the contrast between English dialects with and without post-vocalic /r/.

4) A part of the system may coalesce in one system but not in the other. For example in New York City Labov (1966) noted that the vowel systems employed different contrasted categories which in a different style were coalesced. In a similar way, the distinction between alveolar stops and fricatives tended to disappear in spontaneous speech. In these cases the variables must be measured since there is not likely to be sharp shifting but increases and decreases in the likelihood of making the distinctions that exist in only one of the systems. Casual speech, in which the fewest distinctions were made, was more systematic and consistent than styles approaching "standard English."

5) Phonetic realization of shared phonemes is usually different in different styles. In baby talk in English there is palatalization of many consonants, in comparison to the normal style. (These may be features added to specific items describable segmentally or may be long components added to a whole sequence, but tape analysis is necessary to find out which is the case.)

6) Distribution according to syllable location may be different; e.g. Labov describes an English dialect in which /s/ + stop is not permitted in syllable final position. Also, though /θ/ and /f/ and their voiced counterparts are distinctive in other positions, they are both realized as labiodentals in final position.

7) Morpheme formation canons may differ so that when morphemes are adapted to the other system their structure must be changed. For example, English words integrated into Japanese bilinguals' speech may have added vowels to form CV syllables.

8) Phonemic realization of the same morpheme may be different, e.g. English "ing" may be realized variously as /in/, /iŋ/, and /iyn/ in different styles, the second two being formal.

2.1.4.2. Lexical and Morphological Contrasts

Morphological contrasts are obvious if high-frequency inflectional morphemes are different in the two systems. Stewart (in Shuy, 1964) describes such contrasts between two systems of English inflection. For example, "I see it (today)" vs. "I see it (yesterday)." This system may differ either at the morphological or at the semantic level from standard English which contrasts present and preterite. However, the presence in the same system of "I don't see it (today)" and "I ain't see it (yesterday)" indicates that there is an underlying contrast in categories which simply is neutralized in the affirmative.

When there are lexical differences it is necessary to be assured that the base meaning for the two forms is similar. Examples in English are "dyad" and "couple," "policeman" and "fuzz," "children" and "kids."

Note that there may be some connotative differences due to the participation of these forms in systems which differ in connotations, e.g. in attitudes toward police. Whenever in another culture you find alternative words with "the same meanings" look for stylistic or speaker differences restricting selection.

2.1.4.3. Syntactic Contrasts

One strategy in identifying syntactic contrasts is to get an informant to translate from one system into the other, and then see if this translation can be reduced to a word-for-word translation which a third informant will accept (Gumperz, 1967). If there is difficulty in translation from one system to the other, which may be the case with style shifting, then you might be able to rewrite the text making morphological substitutions and, using an informant, see if it is possible to make an acceptable text from this word-for-word translation you have made. The measure of syntactic difference between two systems is the number of order changes and other syntactic rules you need to produce an acceptable translation from the word-for-word text.

An example of a syntactic difference of sufficiently high frequency to be useful is the contrast between English dialects requiring subject-verb agreement in number and not having this agreement. Another difference, though less observable because rarer, is between systems which have a past and future perfect and those which realize this semantic difference by the use of adverbials and clauses.

Two styles or two dialects of languages may differ in semantic categories, in semological features cross-cutting categories, and so on. It is important to distinguish between three easily confused forms of contrast. If we compare speech to adults and to children we might find that there were different topics selected from the range available to the speaker. If a given topic is selected which is not usual for the speech of an adult to a child, the adult may have to make semantic distinctions which are not available in the system of speech to children. Either he tries to teach the distinction or must avoid this feature of the topic. Finally, there may be a distinction present which is characterized by different lexical selections. He might use the term "acquisition" to an adult in making the same semantic distinction he makes in talking about "getting" or "buying" to a child.

There may be differences in the semantic systems which underlie grammatical or morphological rules in two systems. For instance, in Stewart's analysis of "basilect" (in Shuy, 1964) there is a contrast between a simple perfect and a completive perfect, as realized in "I seen it" and "I been seen it."

2.1.5. Vocal Signals

Vocal signals may be noted for two reasons. One is that they may constitute "channel cues" that there is a shift of style taking place (Labov, 1966). If there is a sudden increase in speed, fluency, a change in pitch, there may be an indication that a shift has occurred. Usually some topical and linguistic variables will also change about the same time.

Another reason for noting vocal signals is that they may themselves constitute systems which change when style shifts. For example, syllable dynamics and voice quality may change in two dialects. Pause markers differ--e.g. unh in English, este in Mexican Spanish, palatalized nasal in Russian. Falsetto is used for particular purposes in some types of Negro speech. Special combinations of prosodic rules may have particular semantic significance in one system and not in the other--e.g. a sudden downward shift in pitch at a stressed adjective in a sentence in standard English implies irony.

The most exhaustive list of vocal signals is given in Pittenger, Hockett, and Danehy (1960). We include these simply as reminders of items to listen for.

Quality changes which may differ from the norm in being above or below it, utilizing a wider or narrower range of variation than is usual, include loudness, pitch, and rate, including drawling and clipping. For example, speech to babies may have a wider range of pitch variation than to older children,as well as generally higher pitch.

Voice qualities which have been noted include rasp or metallic quality, glissando or slurring of pitch changes, breaking of glottal tone, as in incipient crying, breathiness, nasality, resonance, extreme vocal openness, slurring. Momentary effects which could be used for stylistic purposes are inhalation or exhalation, hissing, clicking, sighs, silence, yawning, crying, laughing, whispering, and so on.

One of the great difficulties in previous use of these vocal signals in research is that since many of them do not have the discrete signaling function of the ordinary speech channel, there has been no clear guide to when a "complete" analysis has occurred. The emphasis on contrast puts some inherent limits on what it is practical to include in the present study. We suggest that investigators who note some overall differences between two styles in any of these features try to locate the description in one of the published lists. A tape is available for the Pittenger, Hockett, and Danehy text permitting calibration against their categories.

2.1.6. Intelligibility

In a community where children are exposed to a varied set of linguistic norms, it is important to find how early children can understand varieties they hear. For example, children on the Navaho reservation go to the curing sings from infancy on; by school age they have control over a surprising repertoire of chants. On the other hand, if asked to interpret the text of a chant, they might fail, because of its special lexicon.

2.1.6.1. Glossing a Text

A traditional method for assessing intelligibility is to ask an informant to provide a translation or explanation of a sample of the speech variety. One could probably make gross differentiations, but it might be difficult to evaluate the adequacy of two accounts of this kind.

2.1.6.2. Repetition

Repeating or imitating a tape is a useful test if there are codes with syntactical differences and the speakers in each group do not use each other's speech forms. For example, Labov has asked Harlem adolescents to repeat "He asked if I could go to the game today," and consistently received as an accurate imitation "He asked could I go to the game today." In this case the informant translated from one dialect to the other, keeping the meaning. Note that asking informants in this case to provide a gloss would seem strange.

2.1.6.3. "Cloze"

On a tape, one can excise every *n*th item, and ask informants to guess what was said. (This is called the "Cloze" technique. References to its use can be found in Ervin-Tripp & Slobin, 1966, pp. 444-5.) This seems to an informant like trying to listen through noise. If the original and reconstructed texts are compared, the similarities can be counted objectively. For example, Peisach (1965) used the method for first and fifth grade children varying in race and socioeconomic status. For the first graders she omitted the last word in each sentence. She found that by the fifth grade the social classes differed only when IQ was not controlled, when their guessing of the teacher's speech was tested.

There are several precautions in the use of Cloze. Elaborated speech may be very hard to reconstruct, even for someone close to the speaker. Since different values of *n* or a different location of omission can have a pronounced effect, it is better to compare informants listening to the same tape than to compare tapes or styles. For instance, once a tape is prepared, one could compare children of different ages. Or one could compare children of different age or other status.

All of these methods could also be used across languages in multilingual communities. For studies of multilingual variety, as well as dialectal variety, one should remember that the prestige of the spoken variety may markedly influence the intelligibility to the listener and their willingness to repeat it.

2.1.7. Evaluation

Both Lambert and Labov have used subjective evaluation tests to determine unconscious attitudes towards speech varieties. In a series of studies of a variety of bilingual communities, Lambert and his colleagues (Anisfeld & Lambert, 1964; Lambert, 1967; Lambert et al., 1966) have found that the same voice was evaluated differently depending on the phonological system it used. Thus Canadian judges rated a man with an English Canadian speech guise as more intelligent and competent than the same man in a French Canadian guise.

Labov (1966) has used a similar method in studying the evaluation of speech variables within a monolingual community. He constructed passages containing the forms that had the phonological indicators in which he was interested. Then he took carefully selected sentences from a test group which repeated these passages. He selected the sentences to provide examples of given values of each speech variable. Then listeners were asked to listen to each sentence and rate the speaker. The ratings were rather more practical than the traits judged by Lambert's informants. For instance the rater was asked to be an employer and judge the highest job the speaker could hold. He found that in New York City the use of a dental fricative in thing raised a speaker's judged job suitability but lowered his toughness or masculinity.

When are these values acquired? Lambert found that they showed up by 12 in the inter-language situation. Labov, dealing with the complexity of urban dialects, found changes still taking place up until 20. Presumably formal training institutions could have a marked immediate effect on attitudes towards speech varieties. Both Labov and Lambert have found that values about speech variation can be shared even between speakers who themselves speak quite differently.

If there is any form of speech stratification in the community studied, it would be of value to prepare a stimulus tape for evaluation studies with children. If possible, talented speakers who can "shift" are the best for making such recordings. In a literate community, avoid the use of reading for getting comparable texts. If necessary, get repetitions of oral material for control over content; reading introduces a whole new set of artificialities into speech.

2.2. RECORDING APPARATUS AND TECHNIQUES

2.2.1. Apparatus

Tape recorders come in different sizes, price ranges, qualities, and types. If the field situation is in a city it is then possible and even advantageous to use a heavier machine operating on house current in order to record stereophonically, particularly if more than one person is being recorded at a time. On the other hand, outside of a city it will be necessary to use a battery-operated tape recorder that is as small and light as possible without sacrificing recording fidelity unduly. This will rule out stero for a couple of years at least. A number of good machines are currently on the market, such as those put out by Uher, Tandberg, Nagra, Sony, and Ampex. In order to simplify matters the Uher 4000 Report L and the Uher 4000 Report S are here recommended for field situations in which house current is not available during recording. Notwithstanding the fact that some claim it to be less rugged than might be desirable, the Uher 4000 combines such features as four speeds, battery or wall operation, good fidelity, quality workmanship, and reasonable cost so as to leave it with no real competitor. Although the Nagra surpasses it in fidelity, the Nagra has only one speed and a very high price. The battery-operated Sony lacks the fidelity and the versatility of four speeds as well as reliability of its electronic components, although when price is considered, the fidelity is very high indeed, and suitable for many purposes.

It is advantageous, almost imperative, to bring two tape recorders into the field, preferably of the same make and model. In the first place if one breaks down the other can be used, and if both break down, a judicious combination of parts from each may yield one serviceable machine. In the second place, patching (recording from one machine to another) necessitates two tape recorders. Patching is used for editing tapes, re-recording at a different speed, or re-recording on a tape of a different thickness. In addition two recorders can be used for producing a stimulus on one recorder and recording both the stimulus and the listener's response on the other.

Transport

The means by which the tape is transported across the heads from one reel to another is important for fidelity of reproduction. The transport mechanism consists of one or more electric motors and a band or rubber idler and capstan assembly to transfer the rotation from the

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Section 2.2 was written by Brian Stross. (Additional advice on tape recording can be found in Samarin, 1967, pp. 88-102.)

motor to the tape reels. It is important that the transport pulls the tape across the heads evenly and smoothly at an invariable speed. Variations in speed that produce unwanted distortions are called wow (slow variations) and flutter (fast variations). Any machine to be used for field work should have a specified accuracy of speed of some number smaller than 0.2%. The Uher 4000 L is rated at 0.15% which is even better.

It is possible to purchase accessories for the testing of speed accuracy, but these are usually not feasible for the field. One solution is to blow a 440-A pitchpipe before and after every recording. In playing back the recording, the pitch on the tape should match the pitch of any 440-A pitchpipe. This procedure should also allow one to tell when the batteries are beginning to run down. The pitch of a recording made when the batteries were known to be in good condition should at any time match the pitchpipe. A lower pitch means that the transport is going slower and the batteries may not be up to charge. A higher pitch means that the tape speed is faster than normal in which case it is likely that some tape has wound itself around the capstan (probably because the plastic tips that hold the tape reels in place were not given the half turn necessary to hold the tape in position while the recorder is moved about). When this happens, the tape wound around the capstan should be cut out or pulled off the capstan.

Heads

The heads are among the most critical features on a tape recorder. They are tiny electromagnets that put material on the tape, pick up recorded material to play it back, and erase tape. Most recorders under consideration for fieldwork will have either quarter track or half-track heads. The quarter-track machines double the playing and recording time that would be given by a half track machine for the same length of tape. On the other hand some fidelity is sacrificed by adding tracks in that the signal to noise ratio is smaller on the quarter track machines. The Uher is a half track.

Generally the quality of a recorder with three heads, one each for recording, playing, and erasing, is better than one with only two in which recording and playing are both done with a single head. The compensation of the two-head machine is that it is easier to align the head.

Volume Level Indicator

Input must be adjusted to the right level with the recording volume knob in order to record the most efficiently. If the level is too low, the signal will be weak and tape hiss plus other noise will drown out some of the signal. If the level is too high then the signal will be distorted, a problem which is just as serious. There is one point at which the signal to noise ratio is optimal. This point is indicated on the VU meter, a volume level indicator, and is as close as possible to the red zone (the red zone being that area on the meter in which the numbers have plus rather than minus values) without being in it. The meter needle, which is moving with the input signal, must be kept as close as possible to this optimum point at all times. However the needle should never enter the red zone. Sometimes, when there are wide variations in the volume of the input, and when it is possible to somewhat predict these fluctuations, it is a good idea to adjust the volume level by hand during recording to compensate for the variation while maintaining a strong enough signal.

Digital Counter

This is a device very similar to the odometer on a car. It consists of three rows of numbers that count the amount of tape that has gone by the heads. In order to rapidly locate any given point on the tape, the counter must have been set to 000 at the beginning of the tape, and the number of the desired location jotted down, perhaps with a description of what is to be found at this point. Then the beginning of the tape should again correspond to a setting of 000 and the tape rapidly wound until the right number shows on the face of the counter. Another way of finding a certain spot quickly is to place a tiny strip of paper between the layers of tape at this spot as the tape is being rewound.

Tape Speeds

One tape recorder will offer a variety of speeds. The speeds are in inches per second. The higher the speed the better the fidelity, but also the more tape is needed to record for the same length of time. Varying situations and varying needs call for different speeds. When working in the researcher's native language where the interest is only in content, 15/16 has the tremendous advantage that the tape will run eight times as long as it would at the high fidelity speed of 7-1/2. On the other hand the fidelity at this speed is wholly inadequate for phonological work which in most cases would require 7-1/2 or faster. Editing is another consideration. It is easier to edit a tape recorded at 7-1/2 than one recorded at slower speeds. It is far better to sacrifice the tape in field recording under almost every conceivable condition except that of tape shortage. It will be difficult enough to transcribe the tape anyway, and every bit of fidelity will help make the job easier. In the interest of economy the Uher machine at 3-3/4 ips. can still be expected to yield reasonable good quality for voice and will probably be the speed most frequently used.

Recorder Inputs

The tape recorder will have at least two inputs; one for high level sources and the other for microphones (low level sources). When patching, use the high level input as described in the manual that comes with the recorder. The microphone input can be high impedance (5,000 - 50,000 ohms) or low impedance (50 - 250 ohms). The microphone impedance should match the impedance of the input. A low impedance microphone and input will allow a longer microphone cable to be used, but due to the lower voltage output requires a transformer to step it up. The recorder may have a built-in transformer, or a socket for plugging in an accessory one. The high impedance microphone and input socket obviates the need for a transformer, but necessitates a shorter lead cable. Above all, when buying a microphone, make sure that the impedance matches or is made to match that of the recorder input, in terms of high or low.

Recorder Outputs

There should be a separate output jack on the tape recorder built for high impedance or for low impedance headphones. This can be used for monitoring during recording as well as for playback if the recorder has been wired accordingly, as has the Uher. The Uher output jack is low impedance.

Tape

Tape consists of a thin iron oxide coating on a plastic base. Acetate tape has only economy to recommend it. Mylar is more expensive, but is superior in almost every way including durability and humidity resistance. The five-inch reel will accommodate up to 1800 feet of the thinnest mylar (.5 mil) which works well with the Uher. Some machines are less delicate with the tape than is the Uher, and for these 1 or 1.5 mil tape is recommended. The more feet to the reel, the longer the recording time without switching reels, but also the more delicate the tape and the more likely is the problem of print-through during storage (print-through being a pre-echo of louder passages that can be heard during softer passages during playback).

Tape also comes as either regular or as high output. This refers to the signal output potentiality without distortion during playback. High output tape can play louder without distortion. This advantage should be weighed against a higher cost, in deciding which to use. There are several good brands of tape and a higher price usually corresponds to better and more consistent quality brands. Don't buy acetate, and don't buy tape that is cheap or on sale. This writer recommends Scotch 290 or BASF 1800' either of which should cost about $4.25 per 5-inch reel when gotten at a discount.

It would be a good idea to bring several extra empty take-up reels into the field. They provide a good way of siphoning off recordings for filing, for making available special sections of tape, and make it possible to always go into a recording session with a completely empty tape. Twenty or so of these reels would not be too many.

Microphones

The components of a tape recorder can be thought of as a chain. The finished product is only as good as its weakest link. The weakest link of most tape recorders is the microphone that comes with it. Even the Uher recorder comes equipped with an inadequately performing mike. Microphone prices range from about $10 for a cheap crystal mike to about $200 for a professional quality capacitor mike. The best bet for field recording is a dynamic microphone costing from $50 to $100 (e.g. an RCA BK12-A or an Electro-Voice 654A) of a lavalier type able to be hung around the neck. The ribbon microphone is a very responsive mike to all of the hearable frequencies, but is not quite as durable as the standard dynamic type. (The usual crystal mike is notoriously sensitive to heat and humidity changes. Silica gel packing for the crystal may help in this regard. The problem can be better avoided by using a dynamic mike.)

Dynamic microphones come with varying degrees of directionality. An omnidirectional mike is one that picks up sounds equally from any direction. A directional microphone usually called cardioid because of its heart-shaped pickup pattern, will not pick up sounds from the rear, and is relatively insensitive on the sides. Directionality in a microphone allows the mike to be placed at a greater distance from the subject while keeping background noise at a minimum. Any situation of high background noise, such as outdoors, suggests the use of a directional mike. An omnidirectional mike can be used when background sound is wanted, in a quiet situation, or if the mike is placed closer to the subject. Stereo recording, for the best effect, necessitates cardioid mikes. The Shure 545L Unidyne III is an ideal cardioid mike for the field. If only an omnidirectional mike is available, some amount of directionality can be gained from using a rolled up magazine and aiming at the sound source. Care must be taken not to scrape the mike with the magazine or unwanted popping and other noise will be recorded.

Some directional mikes are now being sold that are so highly directional that whispers can be picked up a block away. These are highly specialized, demanding close investigation before purchase.

If money allows, a good solution to the microphone problem is to purchase more than one microphone including one omnidirectional mike and one cardioid mike.

When recording is done outdoors, the microphone should have a windscreen attached. A handkerchief can serve as a makeshift windscreen if necessary.

When recording is done indoors and a lavalier mike is not used, a stand is advisable. Placing a microphone directly on a table allows the pickup of all kinds of unwanted vibrations and other sounds that cannot be heard until the recording is played back. This is especially true if the tape recorder is on the table also.

Mixer

When recording with more than one microphone a simple Y connection is not really adequate unless the mikes are all the same make and model. In order to blend the inputs of the microphones to achieve any desired balance, a mixer is necessary. On stereo machines, of course, a mixer is only needed for more than two microphones.

Headphones

Because much time will be spent wearing headphones for listening to and transcribing tape recordings, headphones must be comfortable and must provide as good fidelity reproduction as possible. This can be done for between $25 and $50 (the Koss SP-3X for $25 is an excellent low impedance headphone that can be adapted for the Uher input with no trouble and the SP-*SM by Koss is a good versatile Stereo/Mono headset). Headphones are used for listening to recordings rather than the speakers built into the recorder, because headphones can be padded against outside noise, because they do not disturb other people, and because of the incomparable difference in fidelity. Headphones should be as lightweight as possible, rugged, and nicely cushioned, in addition to the high fidelity requirements.

Foot Controls

The Uher and many other tape recorders can be optionally supplied with accessory foot controls for starting and stopping. This apparatus is necessary for translation and transcription of tape recordings.

Batteries

Information about the battery requirements of particular machines comes with the machines. The Uher can use five size-D dry cells or a single 'dryfit' rechargeable battery. D-size cells can be standard dry cells, alkaline batteries, or Nickel-Cadmium cells. Only the last is rechargeable. The 'dryfit' lasts about 7 hours per charge and is good for several recharges unless it is ever completely drained. Standard dry cells last 7 to 10 hours and are non-rechargeable. Alkaline size-D dry cells will last slightly longer and are also non-rechargeable. Size D Nickel-Cadmium batteries last roughly 10 hours, are indefinitely rechargeable, can be recharged after having been completely drained (although this is not advisable) and can be bought at discount for as low as $5 each. Although the NiCad batteries are strongly recommended, a decision can be reached about the relative merits of the various batteries by taking into account the cost, playing time, and time to be spent in the field. Where electricity is not available for recharging, alkaline batteries should be considered seriously. When using standard D cells, it is important that they be of the leakproof kind that are specially made for transistor radios and the like.

Although the NiCad batteries are superior to the 'dryfit,' they take about twice as long to charge and require a higher charging rate than is provided by the Z115 charger.

Never try to recharge a non-rechargeable battery. It may explode, ruining the machine.

2.2.2. Recording Techniques

Recording*

Many ingenious methods have been used to record natural conversations without the awareness of the participants. These include tiny radio transmitters whose signals are recorded, highly directional microphones, and putting recorder and microphone in a briefcase, which is then left in a likely setting.

Most of the fieldwork on this project will involve the recording of people with their awareness and consent. Lavalier microphones are advantageous in working with children because they maintain a constant distance from the mouthof the subject, being hung around the neck. The longer the microphone cable, the more freedom the child will have to move around. A low impedance mike is necessary with cables longer than about ten feet. Some workers have found that very young children will toy with the microphone if it is placed around their necks, in which case a strongly directional microphone held by the field worker or placed on a stand somewhere may be called for, because simply placing the lavalier around the experimenter's own neck results in too great a noise contrast between the voice of the experimenter and that of the child.

When recording more than one child at a time the problem of transcribing the tapes is compounded. One lavalier mike can be used for each subject, or perhaps better, a stereo tape machine can be used. Either way it is necessary to augment the recorder with a person taking notes simultaneously on who is talking to whom. One of the two channels of a stereo recorder has been used to receive whispered comments by the investigator while the other channel recorded the subject. The channels are then played back separately.

Of course even when the subject is a single person, we must count on having a running written record made by a native speaker of the situational cues, and withal it is wise to transcribe the tape as soon as possible after recording.

With reference to an indoor acoustical environment, if the ceiling is high, and the walls and floors bare, and the windows undraped, then reverberation will be a problem to be dealt with by placing the microphone relatively close to the subject. If the room is provided with sound absorbing surfaces and a low ceiling, the mike should and can be kept further back to prevent a 'dead' sound. It is generally a good practice, however, to attempt to improve sound absorbtion as much as possible when recording, both to filter out extraneous noise and to prevent echo. Rugs and drapes are good sound absorbing surfaces, while glass, metal, and hardwood surfaces reflect sound. Practice with the particular microphone that will be used is necessary to develop a feeling for the acoustical requirements of various settings. Use of the earphones in monitoring position will allow this practice without using up tape.

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* Also see Section 1.2.4.

It is assumed that before the actual recording begins, tape leader has been spliced onto both ends of the tape and a reel label has been put on side one of the reel. It should be emphasized that this job should be done before taking the tape into the field (BASF comes prepared with leader tape as well as sensing foil, saving quite a lot of work). Once the equipment is set up and ready to roll, the reel label should be numbered and the leader numbered according to side number and dated (the description should come after the side has been filled with material, or even back at the office). Then on the beginning of each side of tape it would be quite simple to say 'reel 3, side 2' or whatever and blow a two-second blast on the 440-A pitchpipe.

Always make sure after turning a reel over, that the leader exposed has no writing on it. If this is the case the leader should then be labeled with a 2, and the date, and then recorded upon. These precautions and careful indexing will save time and trouble in the end.

Editing

Editing, the process of keeping desired recorded material and getting rid of unwanted material, can be done in either of two ways, electronically or mechanically. The first method is nothing more than using another tape recorder to selectively copy what is wanted from a tape as it is run through the first recorder. Use of the pause control switch such as is on the Uher leaves out the annoying clicks that follow the use of an on-off button. To connect the two machines a cable (preferably shielded) with appropriate plugs should be run from the preamp output of the first (or playing) recorder, to the high level source (phone) input of the second (or recording) recorder. This cable is often called a patchcord, and can be used to copy whole tapes. The second recorder, which is switched to 'record' should either have a slower or the same tape speed as the first, because it is impossible to get better fidelity on the copy than was present in the original. In fact some, if not very much, fidelity is lost through the very process of copying.

Mechanical editing does not necessitate a second recorder, but rather involves splicing. Splicing is the process of welding two ends of tape together. It is used after some intervening tape has been removed when editing is being done. It is used on the broken ends in case of a broken tape also. The best procedure is to buy a simple and inexpensive splicer and follow the accompanying directions. If no splicer is available, the two ends of tape can be overlapped by about half an inch and scissors used to cut diagonally through the middle of the overlap. Next the two new ends are butted together on some flat smooth surface and special splicing tape put over the seam, the excess tape being snipped off with the scissors. Never use anything for splicing other than the splicing tape that is made for splicing recording tape.

When both sides of a tape have been recorded on, mechanical editing of one side will automatically destroy what is recorded on the other side. When such a situation occurs, in which a tape recorded on both sides must be mechanically edited, use the patch cord to take off the section wanted from the reverse side and record it on another tape. Then the splicing will not destroy valuable material.

Tape Threading

A small and handy tape threading aid is on the market for about a dollar, and is called a "fast tape threader." Because it short-cuts starting the tape on the reel, it would be handy in the field in order to lose as little as possible during tape changing.

Transcription and Translation

This aspect of the business depends upon the aims of the researcher. Regardless of how cursory the process is, it would be well to count on at least four to six hours of transcribing time for every hour of taped material even with the help of an informant. One exacting researcher has a native informant (trained to write his own language phonemically) transcribe the recording and translate it from the transcription. The translation process is watched closely and the informant is asked questions about his translating rationale when relevant. The researcher then goes over the tape with the transcription, noting things that he hears that have not been noted by the informant. Then researcher and informant together go over those parts of the tape as well as any other interesting parts about which there are questions. (Additional advice on transcription is given in 1.2.4 and Appendix 2. Also see Samarin, 1967, pp. 102-5.)

Tape Indexing

Once a tape has been recorded and transcribed it will still be needed for reference. For this reason some system of indexing is a must. For this purpose six inches of white tape leader for each end of a reel of tape, one reel label per reel (always put on side 1), and some sort of log book will all come in handy. The reel label will be numbered in order of use. The leader, depending upon which end of the tape it is on, will be labeled 1 or 2 (before the tape is used) followed by the date and as brief a description as desired regarding what is recorded on that side of the tape. This description can be the name of the person(s) being recorded, or the situation in which the recording takes place, or the topic that is being talked about, or the section of the field manual that is being explored on the tape. It may happen that a whole tape is not used on a single date. It is desirable, therefore, to leave room on the leader for more than one date and description. The log book will be keyed to the number of the tape that is to be found on the reel label. Entered in the log book, then, will be first the reel number and then the date(s) found on the leader, followed by as complete a description as is feasible, of the contents of the tape. This should probably include the person, situation, topic, and manual section. If the tape counter is set at 000 a key can be introduced to the log book that will enable one to reach any given section of the tape very rapidly by noting a number in the book. This number can be followed by any sort of description, be it topic, person, or other. The duplication that appears in label and leader and logbook is insurance against loss. The brevity of the label and of the leader is advised in order to save time in the field during the already delicate process of recording, changing reels, and labeling while in the company of others.

2.2.3. Care and Servicing

Head Cleaning

Buildup of dirt and oxide occurs on the tape head and on the tape guides. It is a natural result of running a tape recorder. This dirt interferes with taping and reproduction of sounds. Consequently the tape guides and especially the heads must be cleaned frequently in order to avoid loss of quality. This can be accomplished by using a specially compounded tape head cleaning solution or carbon tetrachloride on a cotton swab or pipe cleaner. Rub gently the parts to be cleaned. Do not drip the cleaning solution and avoid particularly any rubber parts such as the rubber roller that holds the tape against the capstan. Pure alcohol can be used as a cleaner in the absence of the other two solutions. The heads should be cleaned about once a week in the field situation. Tapes impregnated with head cleaner and lubricant can be bought, and these are simple to use and inexpensive.

Head Demagnetizing

Under normal conditions of use, the heads in a tape recorder tend to accumulate small amounts of magnetism. This residual magnetism is bad, acting to partially erase tape as it is being played, particularly on the higher end of the sound frequency spectrum. The head becomes even more rapidly magnetized if the machine is shut off in the middle of taping some very loud sound. Use of the pause control rather than the on-off switch allows the tape to be stopped with less severe effects on the head.

Whatever the cause of the magnetism in the heads, it should be eliminated periodically with the use of a tape head demagnetizer, essentially an electromagnet whose poles are extended in the form of probes, the tips of which are gently played over the face of the head and slowly withdrawn. This should be done every one or two weeks in the field.

Head Alignment

Improper head alignment (when the head gap is not at exact right angles with the tape) can decrease the quality of a recording or playback. It is possible in the field to straighten out the alignment of the playback head by running a tape through the machine while gently turning the alignment screw on the head until the sound on the tape is as loud as possible. For this purpose a prerecorded tape with a constant volume is helpful. This can be bought where tape is sold. Head alignment should not be attempted unless quality is fairly seriously impaired and misalignment is suspected.

Tape Storage and Care

Print-Through. The thinner the base of the tape, the more likely to be print-through, which occurs during storage, and is essentially a transfer of the magnetic pattern of loud passages on one layer of tape to an adjacent layer. Print-through can be minimized by periodically running the tape through the machine, and by not recording at too high a level.

Tape Wear. The natural process of tape wear need not be accelerated by a warped reel. A squeaking sound as the tape is moving provides an obvious clue to this condition. A warped reel can also be spotted by putting the eye level with the moving tape. It should be replaced by one that is not warped.

Tape Spill. To avoid the spillage of tape when a full reel is picked up, and to maintain even winding, use tape clips that snap on the reel. Tape clips can be bought wherever tape is sold.

Tape-End Fraying. To protect the ends of a reel of tape, the leader that is advised above will be quite adequate.

Tape Cleaning. Tapes should be cleaned every once in a while by folding a cloth that is lightly soaked in alcohol and holding it very gently against the two sides of the tape as it is run rapidly through the tape machine. This operation need not be performed more often than every year or so.

Tape Breaking. Mylar tape is not likely to break, but if it does a tape splicing kit is very handy and, considering the modest price, should be brought into the field.

Tape Storage. Although mylar base tapes are far less susceptible to damage from heat or humidity than acetate base tapes, the better they are stored the longer they will last. Temperature should ideally be kept constant and at about 70 degrees F. Humidity ideally should be kept constant and between 40%-60%. The tapes should be stored in the original boxes or in the metal film can type containers. They should be on edge to avoid damage to the reels and tape edges. Stored reels of tape should be wound loosely and evenly. Tapes should above all be stored far away from any sources of magnetism such as speakers, bar magnets, and electric motors. Magnetism will distort and erase tapes.

Tape Erasure. It is at times desirable to erase and reuse a tape. For this purpose, the best erasing job is done by a bulk eraser, a powerful electromagnet in whose field the reel of tape is slowly turned and gradually withdrawn. The bulk eraser is a little too expensive to be worthwhile unless a lot of erasing is to be done. The recorder will have an erase head that is quite adequate for most purposes.

Lubrication

The instruction manual that comes with the tape recorder will either give exact instructions for the lubrication of certain parts of the recorder or it will instruct the user not to lubricate the recorder. If in doubt it is much safer to not lubricate.

2.2.4. Check List

Suggested Equipment to be Taken to Field

Tape Recorder: Uher 4000 Report L (1 or 2)

Carrying Case with shoulder strap (standard for Uher)

Battery recharging unit/AC power supply (or charger adapted to auto battery system)

Batteries: set of 5 NiCad 'D' cells + extra set of five

Microphones:
  Combination 1
    Shure 545L Unidyne III (cardioid $55 w/ discount)
    Electro-Voice 654A dynamic microphone (omnidirectional $60)

  Combination 2 (more expensive, more specialized, slightly better fidelity)
    Sennheiser MU 421 (cardioid)
    RCA BK-12A (omnidirectional)

  Other good mikes are: Sennheiser ES14 (cardioid); Uher M533 (cardioid)

Microphone stand

Microphone plugs adapted to machine to be used

Headphones: Koss SP-3X

Y connection for using more than one mike at a time

Extra plugs (at least 2): Hirschman type for Uher (three prong)

Extra length of shielded microphone cable (at least 25 feet)

Tape clips (1 per reel)

Leader tape (2 feet per reel)

Tape head demagnetizer

Splicing tape

Empty five-inch reels (number depends on use)

Self-threading reel

Tape reels with prepared tape head cleaner and lubricant

Reel labels

Tape (Scotch or BASF)

Foot control

Scissors

Small screwdriver (to take off head guard)

Splicing kit

Record book for tape indexing

Stopwatch

Equipment Care in the Field

1. Clean and lubricate tape heads once a week (machine use of 50 hours).
2. Demagnetize tape heads every month or two.
3. Store tapes away from magnetism, heat, humidity.

2.3. NATIVE INFORMANTS, ASSISTANTS, AND INTERPRETERS

No matter what research techniques he uses, the investigator will have to rely heavily on oral reports and other assistance from natives. In his initial contacts, in the selection of a field site, and in singling out individuals and families for intensive study, the investigator is dependent almost entirely upon local opinion. If the language is unknown, an interpreter is essential. Even if the language is known it would be impossible to carry on one's work entirely without either paid or voluntary assistance from natives. Such help is necessary in operating recording devices, cameras, arranging for interviews, administering formal tests, etc. But more importantly, natives are also indispensable as experts on native culture; their perceptions and observations supplement those of the investigator. Their own personal experience and their recollection of behavior within the local group and family circle provide background information and serve as a source for hypotheses to test in the more formal analyses of language socialization. Furthermore, as co-observers of actual behavior and test performance, the natives' perception of events and their judgments of what is and what is not significant act as an important corrective to the investigator's judgment. It is evident, then, that research results may be seriously affected by types of informants and assistants selected.

Although natives are obviously much more familiar with all aspects of daily life than is the investigator, this does not necessarily mean that their reports of what goes on are necessarily closer to the truth, or more accurate, than are those of the investigator. Notions of what constitutes accurate reporting, or what constitutes real understanding, have been seriously shaken in recent years by work in ethnomethodology (Garfinkel, 1964a; Garfinkel & Sacks, in press). Garfinkel and his coworkers emphasize the fact that any type of investigation which, like social science investigation, relies on verbal reports or on the subjects' verbal perception is subject to the same behavioral rules as are other forms of social interaction. That is, what is said in particular circumstances is always a function of the nature of the interview situation and, ultimately, the social system within which the situation is perceived. It is further affected by stereotyped ways or norms of reacting to interviews, by the social position of the field worker, etc. In any particular field study, of course, all this raises problems of interpretation which can only be solved by prolonged personal experience and trial and error. Previous field experience nevertheless points to certain general features of social organization which can influence the behavior of informants.

Section 2.3 was written by John J. Gumperz.

2.3.1. Factors of Social Organization

The idealized view of cultures as organically cohesive, functionally independent and internally homogeneous entities has come under considerable attack in recent years as empirically unverifiable. Instead, many anthropologists now operate with the more modest assumption that two or more people can have the same culture if they can be shown to understand each other--i.e. if they communicate effectively in a significant number of situations. This shift in emphasis from culture as a set of attributes to culture as cognitive capacity has some important consequences for our notions of internal diversity within human groups.

Problems of diversity need to be investigated ethnographically. Since in the course of their daily routines individuals may communicate with a wide variety of others, and since different norms may apply in each case, there is no longer any reason to assume that any particular human group--even a relatively small community--is culturally uniform. Single communities may be very diverse indeed. Much of the information on internal differences contained in the usual ethnographic descriptions does not, of course, apply to the small groups in which language socialization studies are carried on. The investigator will have to conduct his own empirical investigation. But wherever internal diversity within the group to be studied reflects communicative barriers, it must be taken into account in the selection of native assistants and field sites.

It is probably most useful for our purposes to think of particular communities as varying along a scale of diversity along two dimensions: (1) ethnicity and stratification and (2) role segregation. At one end of this scale are communities characterized by what Nadel (1957) calls involute role structure, socially and culturally homogeneous societies in which any one individual can be substituted for any other individual in the same category without bringing about changes in the social structure. In such groups everyone is an equal and a potential friend, and members view themselves as cooperating as part of a single team. Whatever real differences in wealth, prestige and power exist within such a group tend to be minimized. The language tends to be uniform. There is a premium on conformance to group norms and variation is at a minimum.

In other instances, however, two such internally homogeneous teams may live within the same geographical region as part of the same larger social system. Such groups may cooperate for limited purposes of trade or administration, but this cooperation is limited. In other activities their relationships are characterized by competition, factionalism, and sometimes intergroup hostility. They form part of what Leach (1954) calls a single culturally diverse social system. This is the situation where preexisting differences of language tend to maintain themselves, with each group maintaining its own language as a symbol of group identity. Intergroup communication is carried out either in a neutral trade or administrative idiom or, if the two local speech varieties are mutually intelligible, two individuals may communicate, each speaking in his own language. To adopt or adapt to the other person's language in such situations is sometimes viewed as a form of unwarranted invasion into that person's private life, or as a form of condescension. Characteristically, in such ethnically diverse groups, intergroup differences tend to be magnified. Stereotypes about the other group's strange and incomprehensible behavior prevail. At times, individuals will claim that they do not understand the other group's language. There is reason to believe, however, that whenever such ethnically distinct groups maintain contact over long periods of time, underlying cultural and linguistic similarities develop which transcend the surface differences (Gumperz, 1967).

Whenever differences in wealth, power, and prestige are institutionalized in such a way that one of two ethnically distinct groups is clearly recognized as superior, and one as inferior, we can speak of social stratification. Stratified groups cooperate as members of a team in which individuals have distinct and nonsubstitutable rights and duties. They do not show the spirit of free competition characteristic of equal ethnic groups. In terms of communication, this means that individuals are quite limited as to what they can talk about. There also may be strict codes of etiquette which prescribe _how_ what may be said _is_ to be said (Albert, 1964). In such groups _it_ is the inferior _that_ adapts the patterns of the superior, and innovations spread from the top down. In these situations it is possible for members of socially superordinate groups to be natives of an area, and to live there most of their lives, but to remain almost entirely ignorant of the basic values and norms of their subordinate neighbors. We know of many diplomats, missionaries and businessmen, for example, who have lived in Asia most of their lives, maintaining regular contact with the local intelligentsia, who rarely learn the local language; their values and cultural perceptions remain worlds apart from those of their native servants. Similarly, Turnbull shows that Congolese villagers as a rule have little or no idea of the ritual practices and values of their pygmy servants (Turnbull, 1961).

We can speak of strict role segregation when there are strict prescriptions as to who may and who may not perform certain activities. Thus, in certain farm communities only women may milk cows, only men may tend the cattle, only members of certain descent groups may become priests, men or even adolescents rarely enter the household compound where children are brought up, etc. Barriers of role segregation may be barriers of prescription, that is, when tasks are assigned by descent or sex or they may be barriers of achievement, when tasks may be performed by those who meet certain standards of proficiency. Wherever barriers of role segregation are strict, technical terminologies and codes may be associated with certain tasks. Thus women's speech may differ from men's speech, the language of ceremonials may be distinct from that of ordinary activities, craftsmen and merchants may have their own technical codes. In a sense, baby talk is such a special code (Ferguson, 1964). To the extent that there are social barriers which prevent access to babies, individuals may differ widely in their knowledge of this aspect of verbal behavior. In general, barriers of role segregation are important in field work because they prevent people from engaging in the kind of free role-playing that an investigator may require of an assistant. They may prevent a man, for example, from getting certain kinds of information from women, or they may prevent a student from interviewing his seniors. In cases where there is a clear distinction between literary and colloquial varieties of the language, they may make it difficult to translate interview schedules into a colloquial style that would be likely to elicit the kind of free responses that the investigator wants.

2.3.2. Problems of Social Change

Under the conditions of rapid social change which have begun to affect all parts of the world, it is rare to find a community which does not show at least some influence of urbanization or westernization. Wherever there are settlements of westerners or westernized groups, marginal communities tend to form around these settlements who adopt their values and their aspirations. Even where there is no organized group of westerners, government offices, commercial establishments and schools tend to attract new groups who are strongly under the influence of western literature and trends. With the emergence of such groups, serious differences may develop, even where no differences previously existed. Westernized individuals are considerably more literate and bilingual in one of the major literary languages. Having gone through a modern system of mass education, they are attuned to the values which this education imparts. They may be more used to such tasks as taking tests, to writing as an everyday activity, and to western values about research. As a rule, these are the first people whom a foreigner meets (Gumperz, 1965b). By the very nature of their position in the society, they are upward mobile. They seek out westerners and seek to maintain this contact which, for them as well as for the westerner, is a learning experience. At times they tend to surround and protect the investigator so that considerable initiative is required on his part to meet less westernized individuals. Since many of the more westernized people are bilingual or at least considerably more literate and exceptionally verbal, they make excellent assistants, but it must also be remembered that these people are marginally a part of their own societies and are, in effect, frequently in revolt against traditional norms and patterns. This means that they may have become alienated from their traditional kin groups. If they are accepted, and still regarded as regular members, they are accepted by virtue of their ability to switch roles. Their actions and words are affected by social context to a much larger extent than those of their more traditional co-residents or the extremely westernized group. They are thus considerably more skillful at disguising their reactions than their more isolated contemporaries. Because of their sensitivity to others, their responses are highly colored by what they think the investigator wants.

2.3.3. Social Criteria in the Selection of Informants and Assistants

The above remarks, general as they are, give us a basis for predicting and understanding some of the difficulties the investigator may encounter in selecting and evaluating assistants and informants. In culturally homogeneous societies there are no serious social limitations on who may or may not be a good informant. Anyone has equal access to all relevant activities; thus differences between individuals are due largely to factors of personal ability and intelligence. When these communities are very isolated--i.e. when they have had little direct contact with strangers--the investigator may have considerable difficulty in obtaining the kind of cooperation he needs in his interviews and tests. Sociological interviews, psychological tests, etc., are accepted in western, middle-class culture, where test-taking and questionnaire-answering are skills which an individual acquires as part of his educational background. We are used to having someone come in, identify himself as a researcher, and start asking questions without much in the way of personal introduction. In isolated closed groups, linguistic interaction tends to be person-oriented rather than task-oriented. The investigator may therefore have to spend a considerable amount of time in chatting informally about himself, his background, and other seemingly trivial matters. Only after this warm-up period may natives be willing to respond to his substantive questions. To illustrate some of the difficulties involved, we may cite the case of the western-trained psychologist attempting to do research on child-rearing in an Indian village where women are kept in strict purdah seclusion. As part of her field procedure she had planned to ask certain informal questions about family background and child-rearing practices and to test the children using doll-play tasks, etc. Somewhat to her surprise, she found initially that, although people were friendly, she found it difficult to create serious involvement in the interview task. She had failed to take into account the pure entertainment value of the appearance of a western woman. People's curiosity about her dress, her manners, and her background frequently got the better of them, and forced her to reschedule her interviews in such a way as to allow time for informal chatter.

Unfamiliarity with western academic procedures on the part of members of isolated groups also creates serious difficulty in training native assistants. As a rule, considerable investment in time and effort is necessary to teach people to overcome the native ways and to learn the new procedures. However, as was stated above, the fact that members of isolated communities have little or no experience in interacting with strangers means that their behavior is less likely to alter significantly in interaction with strangers. Linguists frequently use the term "one-style speaker" to symbolize the fact that there are some individuals whose speech behavior can be described in terms of a single structurally homogeneous system. Such one-style speakers and one-role actors are likely to predominate in isolated communities.

Where barriers of ethnicity exist, the selection of informants from one group or another does, of course, have serious social consequence. The ultimate choice must depend on local conditions. If both groups are to be covered, it would seem important for the investigator to get some ethnographic information about intergroup stereotypes. It might be useful to get accounts of similar events from members of both groups or, for example, to ask members of each group to compare their own childrearing practices with those of the other group, or to play tapes collected in the other group in order to elicit their reaction. If an assistant from group A is chosen, it will be important to have some good informants from group B, and vice versa. It should be remembered that whenever groups have been in contact for a long period of time, whatever surface differences exist may correspond to important underlying similarities. Differences between groups tend to be attitudinal, and may not correspond to any serious differences in communicative competence.

In stratified societies, superordinate groups as a rule are those who have most contact with outsiders and have had easiest access to western education. Quite frequently, members of these groups have become, or are in the process of becoming, part of the westernized elite. Obviously, since they are used to western ways they make very good informants and assistants. But it must be remembered that the history of their relations with their social inferiors frequently keeps them from effective communication with them. Frequently they have communicative habits and mannerisms, quite unintentional on their part, which nonetheless arouse negative reactions on the part of informants, and prevent them from being at ease in their presence. The result is that a neutral westerner may sometimes be able to elicit certain kinds of information which an assistant may not.

Subordinate groups, on the other hand, tend to be considerably more isolated than superordinate groups. Their members, although used to communicating with others about certain limited neutral matters, may be much like members of isolated groups when it comes to communicating about personal and family matters. They may thus contain a large proportion of one-style speakers.

The selection of informants, assistants, field headquarters, etc. in stratified communities presents serious problems for the investigator. No matter where he chooses to locate, and how he chooses his collaborators, the investigator is likely to have some serious problems in obtaining comparable data and in maintaining friendly relations with the separate communities. Superordinate groups as a rule are much easier to contact. But they may also be accomplished style-switchers and code-switchers, and this makes them more effective at keeping the investigator from learning things they do not want him to learn. Since to house a westerner, and to be his friend, carries great prestige they are usually very eager to cooperate with him. Since their children tend to be educated, it may be easy for them to furnish him with an assistant.

But the closer the investigator's contact with the superordinate group, the greater is his potential difficulty in working with others. Their values and norms may differ radically from those of others. They may have been influenced by western practices to such an extent that they have preserved very little of the traditional practices, and to work with them--to see the culture entirely through their eyes--may be quite deceiving. The best way to learn about subordinate groups, on the other hand, is to live with them, but this often becomes difficult in view of the fact that the foreign investigator is a person of prestige and is sought after by the politically powerful. Field workers, working in caste-stratified Indian villages in the past have found it impossible to avoid living with upper-caste groups. Attempts to avoid contact with these groups have in the past brought about some serious difficulties. Those wishing to work intensively have had to compromise by turning intensively to these groups only after spending some time placating the powers that be.

We have already mentioned some of the limits that role segregation places on the individual's ability to obtain information about all aspects of community life. Because of the importance of translation of questionnaires and interview schedules, it might be useful to recount some of the difficulties incurred in a previous comparative project. The task was to translate a questionnaire dealing with punishments and rewards used in childrearing. A native research assistant, who had been in the field for several months and was a trained sociologist, was asked to translate the English schedule into Hindi. She was urged to be as colloquial as possible, to make sure that uneducated villagers could understand it. The result was a translation which was so literary as to be incomprehensible to the villager. Repeated attempts to revise the questionnaire, making it more informal, resulted only in awkward and stilted language. It seemed to be impossible in this way to arrive at a text that would achieve the results we wanted. In the end, we decided to start over again orally. We asked the research assistant to ask informal questions directly, using the English text as a guide. The results were considerably improved. In order to improve the text even more, we went back to the same informant, played the interview text to her, and asked her to give her own impression of the meaning of each question. When it seemed that she had not fully understood a point, we explained it to her, and then asked her to rephrase the question in a way which would be understandable to her fellow villagers. The resulting text was not only more natural; it was considerably longer and more redundant than its English equivalent, but it proved to be effective. In commenting on the final version of the text, the native research assistant said that she could never have brought herself to write in that way. For her, conversation and writing were two entirely different language forms, and being asked to mix the two made her feel as though she had been asked to write down obscenities.

It is apparent that there are social reasons why some individuals make better assistants than do others, reasons which often underlie the fact that people differ in the tasks that they can best perform. In the actual selection of informants or assistants, it will of course be necessary to consider a number of additional criteria relating to personal experience, background, intelligence and ability. These individual characteristics are discussed in a recent volume by Samarin (1967). Such factors may at times be more important than the social criteria mentioned above. All things considered, it would seem that the best assistant is a person who has had some western education and is a good bilingual, provided he has the necessary basic intelligence and adaptability. These latter qualities may well be more important than formal education and experience. No matter what the native's previous experience, the investigator will have to spend considerable time in initial training. This is not merely a matter of imparting new information. The assistant will have to develop new attitudes toward research. He will have to overcome some of his most firmly held attitudes about others. He will have to reexamine his own subconsciously held norms of language usage. All this requires close and personal contact and supervision over time. Frequently, adolescents or young adults are more susceptible to this kind of training than are older people since their views are less fixed and since they have less of a stake in their attitudes to others.

Contrary to what one might expect, previous language training is by no means always useful. In societies with a strong literary tradition language students tend to be drawn from the most conservative sectors of the elite. They have been given fixed views about proper pronunciation and grammar, and may be led to report what they have learned in school rather than what they actually hear and see. It is not easy to convince such individuals to look at usage from an anthropologist's point of view.

The same criteria that apply to selecting assistants do not always apply to selecting informants. In the initial stages of a linguistic study, for example, people who switch too frequently between different codes may confuse the investigator. This is especially the case in areas of ethnic diversity. Field workers in Australia tell of cases where a person has served as a linguistic informant for several years in a language which later turned out to be not his own. There were social reasons why he wanted to be identified as a speaker of that language. Possibly it would be best to start linguistic investigations with one-style speakers. Since his speech tends not to vary with context, such an individual is capable of repeating the same utterance over and over again without significant alteration, while more sophisticated individuals will change from utterance to utterance. One-style speakers can be found in most communities--although they are sometimes difficult to locate. They are usually quiet people, performers of routine tasks, whose friendships are largely confined to their family circles. Other, more accomplished individuals, may be brought in at a later stage in the investigation. No matter what the field situation, the better the informant understands what you want, the more useful he is. On training informants for linguistic work, see Samarin (1967). Here again, adolescents may be more useful in learning to understand what the investigator wants, since they are more adaptable. In some cases informants may be trained to use tape recorders to record natural conversations; this has proved to be a highly useful source of good data in the past.

It is important that every field investigator review his particular situation in order to determine the relative importance of the various criteria--both those of social organization and of individual qualifications--which will influence the effectiveness of his assistants and informants. Only by so doing will he be in a position to select individuals best able to help him accomplish his specific objectives.

PART THREE

THEORETICAL CONSIDERATIONS AND POSSIBLE SUBSIDIARY STUDIES

3.1. PHONOLOGY

The development of reactions to speech sounds, and of production of speech sounds--like semantic development--antedates the development of the linguistic system itself in ontogenesis. We can speak of pre-linguistic studies of sound development as well as studies in the linguistic system. The two stages are separated chronologically by the appearance of stable meanings for sound sequences, other than affective categories.

3.1.1. Pre-Linguistic Studies

3.1.1.1. Situational Variation

It is possible to observe general affective differences in sound distribution early in babbling. It may be also that individual children vary in preferred sounds according to the situation (Tischler, 1957). It would be of some interest to know if there are cross-child and cross-cultural similarities in such situational or affective differences in sounds.

In order to do such a study, one would systematically sample the vocalizing of infants A and B. A series of standard situations should be defined: the period following feeding, vocalizing while being washed or cleaned, handling an object, reaching for something out of reach, etc. Samples of at least 30 minutes should be obtained in each situation at six, eight, and ten months for each child. A large number of short samples, if possible, would increase the variety. For a study of individual variations within the society one would, of course, study a larger sample of children.

3.1.1.2. Babbling Convergence

Mowrer (1958) suggested that one of the important factors in the development of speech either in birds or man is that the dependent learner's sounds are rewarding if the caretaker's voice was rewarding

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Section 3.1 was written by Susan M. Ervin-Tripp.

and the voices are similar. That is to say that the child's voice gives secondary reinforcement to the child.

This theory is widely cited, but it has never been tested by comparing the vocal output of children in different linguistic milieux. Theoretically, the child's speech should converge in two respects on the input he hears. The type of sounds he utters should become gradually more similar to the adults. Since we know that the sound features of linguistic systems may combine in varying ways--e.g. the voice bar in a voiced initial stop may have varying times of onset in different languages relative to the second formant onset--it would be possible to compare infant and adult spectrograms for similar sounds. Secondly, there may be a change in the frequency distribution of various sounds. If, for example, a central vowel is much more frequent in one adult language community than in another, we would expect that such vowels would be more frequent in babbling in infants hearing this input. In the core section on phonology (1.2), we have suggested how to test these predictions. Since children's phonetic production can be quite different from that of adults, spectrographic analysis of very limited features could profitably supplement or replace the categorizations of listeners.

Order. Previous studies have suggested that the variety of sounds made in babbling far surpasses the variety available to the same child when he begins meaningful speech. It has also been claimed that some sounds hardly ever occur in babbling. One simple way of checking on the sounds in babbling is to make a core list of sounds to be checked and test for them under the situational sampling conditions described above. After each block of babbling, one could check whether any of these items occurred:

[m] [n] or [ŋ]	
[b] [d] [g]	(Not always possible to distinguish because of co-articulation.)
[x]	(velar spirant)
trill	(tongue tip or back)
pharyngeal	
glottalized stops	

J. S. Gruber (1966) recently noted a kind of "utterance structure" in babbling, in that sequences have internal order, and a sequential direction from unmarked to marked, in Halle's sense of the term.

Konishi (1960), comparing children in Japan, argued that bilabial stops precede non-labial stops in babbling, but American studies do not agree. The diachronic model mentioned in Section 1.2 would provide data on this point.

3.1.1.3. Imitation

Claims are often made about the imitations of pre-linguistic children. It is difficult to know when a child is imitating. His fluctuating orientation towards stimuli makes it easy to dismiss failures as merely inattention; clearly what is needed is statistical comparisons of vocalization made after varying inputs to see if the input-output correlation is non-random. These correlations could be made with a variety of features. For example, it is often claimed by parents that their pre-linguistic children can imitate sentence rhythms and intonation but the content is gibberish. No test of this observation has ever been made systematically.

3.1.2. Linguistic System

3.1.2.1. Phonemic Discrimination

There are a number of tests for sound discrimination in English. Examples are those of Provonost and Dumbleton (1953) and Schiefelbusch and Lindsey (1958). These generally rely on identification of objects whose names differ in certain ways. The difficulty of using natural vocabulary to study the development of discrimination is that the vocabulary of children is not conveniently organized into minimal pairs so that one can test pit-bit, gat-cat, and so on.

Shvachkin's study in the Soviet Union (1948) is cleverly arranged to surmount this problem by the use of artificial words. He described his method as follows (using as subjects 19 children between the ages of 0;10 and 1;3):

> 1. The experimenter came to the child with an object, named it, for example, with the word bak, and worked with the child until he was convinced that the child correctly related the given word to the object.
>
> 2. On the next day the experimenter came to the child with a new object and named it with another word, for example, zub. Once again the experimenter obtained the criterion that the child correctly related the given word to the object.
>
> 3. After this, both objects were presented to the child. He was faced with the task of discriminating the two objects and correctly relating the learned word to the object. The children were generally able to solve this task after a certain amount of training.

4. Then the experimenter showed the child a third object and named it, for example, *mak*, in opposition to the word *bak*. The child correctly related the given word to the object.

5. *Mak* and *zub* were presented together. The child distinguished these words and objects, as well as *bak* and *zub*.

After this, the critical phase of the experiment began:

6. The child was presented with all three objects at once: *bak*, *mak*, *zub*. The task was to determine if the child would successfully distinguish *bak* and *mak*, i.e. could he discriminate between the words on *a phonemic* basis? (p. 109; translated by Dan I. Slobin).

On the basis of exhaustive, longitudinal study along these lines, Shvachkin determined the ontogenetic sequence of phonemic development in Russian children presented in Table 5, below.

Table 5. General Scheme of Phonemic Development in Russian Children (after Shvachkin, 1948)

VOWELS

1. *a* vs. all other vowels (low/non-low)
2. *i*-*u*, *e*-*o*, *i*-*o*, *e*-*u* (front/back)
3. *i*-*e*, *u*-*o* (high/mid)

CONSONANTS

4. consonant-phoneme -- zero phoneme (presence of consonants): *ok*-*bok*, *ek*-*vek*, *ik*-*d'ik*
5. sonorants and "articulated" obstruents: *m*-*b*, *r*-*d*, *n*-*g*, *y*-*v*
6. non-palatalized and palatalized: *n*-*n'*, *m*-*m'*, *b*-*b'*, *d*-*d'*

Sonorants

Among sonorants

7. nasals and non-nasals: *m*-*l*, *m*-*r*, *n*-*l*, *n*-*r*, *n*-*y*, *m*-*y*
8. intranasal distinction: *m*-*n*
9. intraliquid distinction: *l*-*r*

Sonorants and "non-articulated" obstruents

10. *m*-*z*, *l*-*kh*, *n*-*ž*

Obstruents

11. labials and non-labials: *b*-*d*, *v*-*z*, *f*-*kh*, *v*-*ž*
12. stops and spirants: *b*-*v*, *d*-*z*, *k*-*kh*, *d*-*ž*
13. aspirants and velars: *d*-*g*, *s*-*kh*, *š*-*kh*
14. voiceless and voiced: *p*-*b*, *t*-*d*, *k*-*g*, *f*-*v*, *s*-*z*, *š*-*ž*
15. hushing and hissing sibilants: *ž*-*z*, *š*-*s*
16. liquids and *y*: *r*-*y*, *l*-*y*

By analogy, one could work out a study along these lines:

1) Find out the phonemic categories in the adult system, and guess which categories are likely to be perceptually similar on the basis of the features of those categories.

2) By some preliminary work on observing children's speech, find which words are "mispronounced" most often. Informant reports would help guide attention. Note the substitutions made and describe possible problems of discrimination on this basis.

3) Work out a set of minimal pairs which contrast only one feature at a time, in a syllabic pattern normal to the language, e.g. /pat/ vs. /bat/, /bat/ vs. /vat/. It may be possible to find some natural words like this, but you don't need to match all phonemic contrasts, just those pairs that are very similar except for one feature.

4) Start with older children, to help establish the task and to train yourself. Then you can work backward, changing the procedure as needed for younger children.

5) The general procedure for testing a discrimination with small children is to provide some objects they can discriminate easily, and to give them different names. With small children, the easiest discriminations are between different shapes like triangle and circle, and big differences in size. So make a list of the syllables to be used in the testing, and see to it that every pair tested has a "named object" easily discriminated by a child from the object named by the syllable paired with it.

6) There are three steps in the learning.

   a) The child learns that there are two different names for the two different objects.

   b) The child learns that there will be a reward with only one of the objects at a time, and that he must choose.

   c) The actual test, with a choice based on the name of the object rather than another one.

7) Example and method.

   A large triangle is "two."

   A small triangle is "tea."

Use as rewards trinkets, colored sticky paper, or some other objects which don't readily satiate as do foods. Variation might be a good idea.

a) The triangles are pasted on the front of boxes or cups. Inside each is a reward. Hand the triangle to the child saying its name. Do this several times for each triangle.

b) Put a reward in the right-hand one each time, saying its name.

Change the position of the objects so that the child gets the idea that position predicts the reward locus. He will hear both names several times this way too. He does not get a reward when he chooses the wrong one.

c) Put a reward (child can't see) behind one of the triangles. Keep the position of the two constant but make a random schedule for the rewarded one. (E.g. toss a coin and make a list from the heads and tails sequence.)

In this procedure it is important to stick to a random schedule and not to give extraneous cues by putting one cup further forward, looking at it, since the child is supposed to find it only from hearing the name.

d) Go from easily discriminated auditory contrasts to harder ones.

3.1.2.2. Acoustic Discrimination

An extremely important series of studies on adults (Liberman et al., 1961; Lisker et al., 1962) has shown that discrimination of acoustic differences is not any better than the categories available in the phonemic system, for many consonants. This means that adults have learned fine discrimination across phoneme boundaries but within phoneme boundaries (i.e. for sounds which usually realize the same phoneme) they can't make discriminations any better than they can discriminate non-speech sounds. Does this learning occur quite early, along with the development of stable phonemic contrasts? The Haskins laboratory has experimental tapes available, produced by a speech synthesizer, which could be played by anyone with a reasonably good tape recorder to test the development of contrasts. The only limit would be that the contrasts should be appropriate to the language being studied. The following have been studied:

1) /ba/ vs. /da/ vs. /ga/

2) /sla/ vs. /spla/

3) /apa/ vs. /aba/

4) adjacent vowels.

There are two experimental procedures: play three stimuli on the tape. The first two are different; the third is like one of the other two. The informant says whether it's like the first or the second. The other procedure is to say what the stimulus was (identification).

Before using these procedures in field work, of course, some adaptation to the child informant must be made. This is a procedure which is like the preceding one in requiring a long and somewhat tedious training rather than naturalistic observation. While it would eventually be desirable to do cross-linguistic studies, we include it here for the benefit of phonological specialists, who might wish to develop a battery of methods for comparative phonology.

3.1.2.3. Productive Linguistic System

Because of the difficulties of identifying with precision when meaning begins, we will here be concerned with the developments after there are several well-established words identifiable by the child's family, and elicited also by the investigator. Such a stage usually occurs after 12 months.

The most striking advance in the theory of phonological ontogeny was Jakobson's proposal (1941, 1962) that children's sound development was phonemic, that it occurred by feature acquisition rather than phoneme acquisition, and that there is a predictable order.

1) Are children's systems phonemic? A complete description of the phonemic system might be beyond the capacities of many of the users of this manual. We suggest looking for the following information, by eliciting vocabulary already known, imitations, and teaching new words. (See Sections 1.3.1 and 2.1.4.1.)

a) What is the phonetic variation for a given word in the child's vocabulary? In diary studies we find that at first "shoes" might be [sis], [šis], [sUz], [šɨz], etc., without any consistent way to predict the variations. On this evidence, we might have the following hypotheses, to be tested with other words:

(1) There is no distinction between high vowels, i.e. there is a single high vowel.

(2) There is no distinction between [s] and [š], but whether there is a contrast with other initial consonants must be tested, e.g. [t], by seeing whether the child could learn another word [tis].

(3) There might be no voicing distinction in final position. Whether there is one in initial position is not clear without further evidence. It often happens that there are more distinctions in initial than in medial or final position.

b) Normally a full phonemic description would require specifying allophones in complementary distribution. Since such a full description is very difficult with a small corpus, it seems more practical simply to have criteria for specifying when we shall say a child makes a phonemic distinction. For a given distinction one should be able to find at least one consistent "minimal pair" such as baba vs. mama, i.e. one pair in which there is a consistent sound contrast corresponding to a meaning contrast in a given environment. Note that the fluctuation for a child may be such that [a], [æ], [ə] and [ɔ] are not distinguished by the child, and are in free variation so that the consonantal environment can be tested easily with any of these vowels, e.g. in imitation (if the free variation also occurs in imitation).

Since distinctions may be maximized in initial position, this is the preferred position for testing distinctions.

2) Are features or phonemes acquired? One way to frame the feature hypothesis is to say that if a feature is contrasted in one combination it must be in another, or that the system must be symmetrical. Thus one would not find /m/, /n/, /b/, and no /d/.

In practice, of course, one might lack an instance simply because it is missing in the adult system or more likely there is no appropriate item in the child's vocabulary. If there are such items in the language, then ask someone to teach the child (see Section 3.4.3), or elicit imitation. Presumably such items should be very easy for the child, as easy as new words composed of phonemes already in his sytem.

Easy features to test might be voicing, nasalization, and palatalization if it exists in the language.

3) Specific order of development. Below are described the generalizations predicted from Jakobson's theory, plus comments on data available from diary studies giving some confirmation.

a) The earliest phonemic systems should consist of the following:

a front occlusive such as /p/
an open vowel /a/

a contrast of labial and dental /t/
a contrast of nasal and oral /m/ and /n/

Diary data:

(1) Early words tend to involve the syllabic CV pattern common in babbling.

(2) If there is only one consonant at a given point of articulation, it is usually a stop. If there are two, the second is a fricative or nasal. Contrasts between stop and continuant appear very early for all the children studied.

(3) Typically the first place contrasts are labial vs. dental. Voicing contrast follows place contrast.

b) The next stage according to Jakobson should be a splitting of the vowel so that there is a high vs. low vowel.

(Diary data confirm this pattern.)

c) Next the vowel system splits in one of two alternative ways, forming one of the following systems:

/ɨ/ [i]~[u]   /i/   /u/

/ʌ/ [e]~ [o]   /a/

/a/

While stage (b) might coincide with some of the consonant splitting described in (a), stage (c) must follow stage (a).

d) Stops precede fricatives, e.g. /p/ before /f/.

Confirmed by diary data so far.

e) Fricatives precede corresponding affricates, phonemically. e.g. /š/ precedes /č/, but note (as for all these comments) that an affricate may be an allophone from the very beginning. We find diary reports that /t/ in final position has as a free variant [ts], for instance, long before any affricate phonemes appear.

In the diaries, affricate phonemes are typically later than stops and nasals.

f) The splitting of the front vs. back vowels first occurs for high vowels, i.e. /i/ vs. /u/ precedes /e/ vs. /o/.

g) Where rounding of vowels and their place are independent, /y/ will follow /i/ and /u/ and so on, that is rounded back and unrounded front vowels will precede rounded front vowels.

h) Differentiation is maximized in the front consonants, e.g. /p/ vs. /f/ precedes /k/ vs. /x/. Note that this prediction conflicts with the feature prediction.

Some additional generalizations from diary data:

i) Liquids follow stops and nasals. Note that "liquid" is a phonetic characterization, and an /r/ can be phonetically liquid in one system but not in another.

j) In systems with vibrant [r] and a liquid lateral, the lateral precedes.

k) The contrast of nasal and oral vowels is relatively late.

l) Clusters appear phonemically considerably later than their consonant phonemes, in the case of consonants. Thus /tr/ may typically not be distinguished from /t/ until well after /r/ is an independent phoneme.

m) Consonant contrasts are usually maximal in initial contrasts and may be neutralized in other positions at first, e.g. a child who distinguishes initial /d/, /t/, and /s/ may in post-vocalic position have [d], [t], [s], and [ts] in free variation.

n) The typical early word patterns are CV, CVC, CVCV.

o) Various types of assimilation rules are common. For example, there may be nasal assimilation so that if any consonant is nasal, the initial consonant must be.

Or there may be a limit to the amount of difference between two consonants, so that they cannot differ in both place and type, in a word with more than one consonant. Thus one could have /bada/, /nama/, and /maba/ but not /naba/ or /dama/.

4) Methodological counsel. Children do not necessarily employ the same cues for discrimination as adults, nor do they select the same features for their productive phonological systems. Therefore it would be an error of analysis to assume that the child's system is merely a simpler version of the adult's. The summary by Ervin-Tripp cites several such examples (1966). Velten's child (1943), for instance, had a

contrast in vowel length which antedated a voicing contrast in consonants. She simply selected a feature which was correlated with voicing, at least of final stops. Chao's grandchild (1951) had a system of allophones that was quite different from the adult system.

Another analytic pitfall is the assumption of the consistency of the system. The phonological data cited by Ruth Hirsch Weir in Language in the crib (1962) reveal interesting inconsistencies such that the child's realization of an adult morpheme might be within the range of the adult phoneme most of the time, but oscillate sometimes. One expects such inconsistencies in a system undergoing change. One should also be prepared for redundancies of features, and examine their structure, which may not be like that of the milieu.

5) Substitution rules. The rules by which children make substitutions for words in the model languages can reveal a great deal about their phonemic systems. During the stage where spontaneous imitations are very frequent, one can collect considerable data which may be useful for phonemic analysis. However, two precautions are necessary in using such data. If the words the child uses have been in his vocabulary for a long time, it is not at all unusual for their form to survive from an earlier stage of phonemic development. In such a case the "imitations" are processed differently than imitations of new words, since they may be coded as familiar semantic units with a regular phonetic realization rule rather than being processed by the child's analysis of the sounds he hears. Secondly, there are hazards, noted earlier, in relying on imitations, since children's imitative skill regularly improves with age and in fact in different respects may deviate, to different degrees, from his own phonemic system. Thus adults can usually imitate vowels quite well, making finer gradations than one would expect from their phonemic categories. The safest procedure, then, in using substitutions or imitations is to use new items, and to look for time lapses from model to imitation. If the child imitates several times after the model, listen to the last time.

The study of sbustitution rules raises some very interesting questions. For example, there may be some feature priorities in imitation, such that any word by the model containing a nasal consonant is imitated with a nasalized initial consonant. Cases have been cited of displacement to the end of sibilants. If you hear some cases of this sort try to formulate a rule so that you can test with some new words.

3.2. GRAMMAR

The past decade or so has seen a great flowering of interest in developmental psycholinguistics--particularly in the early period of grammatical development between the ages of 18 months and about four years. Although ready answers to key problems are certainly not yet available, our factual knowledge of English child language has been greatly enriched in recent years, thanks especially to the work of Susan Ervin-Tripp and Wick Miller (Ervin, 1964; Miller, 1963, 1964; Miller & Ervin, 1964), Roger Brown and Ursula Bellugi and their co-workers (Bellugi, 1964, 1965, 1967; Brown & Bellugi, 1964; Brown & Fraser, 1963; Klima & Bellugi, 1966), and Martin Braine (1963a, in press). We now have fairly clear data on the early stages of grammatical development in at least a dozen English-speaking children, based on intensive, longitudinal study. The findings of independent studies in California, Massachusetts, and Maryland are very close, and these data correspond remarkably well with what little is known about child speech in a number of other languages: French (Bloch, 1924; Grégoire, 1937; Guillaume, 1927), German (Stern & Stern, 1928), Russian (Gvozdev, 1949; Slobin, 1966a, in press), Serbian (Pavlovitch, 1920), Bulgarian (Gheorgov, 1905, 1906, 1908), Japanese (McNeill, 1966a; McNeill & McNeill, 1966). (For reviews and discussion of cross-linguistic similarities in child language see Braine [in press], Ervin-Tripp [1966], and Slobin [in press]. A list of materials on children's acquisition of 21 different languages can be found in Appendix 5.)

With the exception of McNeill's current work on Japanese, and a few parental diaries on languages such as Chinese (Chao, 1951), Garo (Burling, 1958), and Georgian (Imedadze, 1960), information on the acquisition of non-Indo-European languages is almost entirely lacking. In addition, with the notable exceptions of experimental studies conducted in recent years in the United States, the Soviet Union (Slobin, 1966a, in press), Romania (Slama-Cazacu, 1957-66), and a few other countries, the bulk of our present information on child language is based on unsystematic parental observations. What is urgently needed at the present time is a body of systematically gathered, comparable data on the acquisition of a variety of native languages. This, of course, is a prime goal of the present field manual.

Comparable cross-linguistic developmental data can hopefully cast light on the provocative theoretical debates on language acquisition--debates which are currently engaging the active participation of psychologists, linguists, philosophers, and anthropologists (vide, inter alia: Bever, Fodor & Weksel, 1965a,b; Braine, 1963b, 1965; Brown & Bellugi,

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Section 3.2 was written by Dan I. Slobin.

1964;Chomsky, 1959, 1965, 1966, 1967; Ervin, 1964; Fodor, 1966; Gruber, 1967; Jenkins & Palermo, 1964; Katz, 1966; Lenneberg, 1962, 1964, 1967; McNeill, 1966a,b; Skinner, 1957; Slobin, 1965, 1966a, 1967, in press; Staats & Staats, 1963).

In Section 3.2.1, below, a summary of major aspects of the acquisition of English grammar is presented. This summary should give the field investigator some feeling for the nature of grammatical development, and sensitize him to the observation of comparable phenomena in the field. The following section, 3.2.2, suggests hypotheses and specific aspects of grammatical development against which the field data should, if possible, be matched.

3.2.1. Aspects of the Acquisition of English Grammar

Perhaps the basic fact which faces investigators of child language is the speed of language acquisition. The cognitive capacities of a little child seem to be generally rather limited, yet he masters the exceedingly complex structure of his native language in the course of a short three or four years. What is more, each child, exposed to a different sample of the language, and generally with little or no conscious tuition on the part of his parents, arrives at essentially the same grammar in this brief span. That is to say, each child becomes a full-fledged member of his language community, able to produce and comprehend an endless variety of novel sentences of the language he has mastered.

The facts dealt with in this section have to do with one aspect of the course of language acquisition--the process of grammatical development. And the basic facts, in regard to the ontogenesis of grammar, are: that combinations of words and parts of words in child speech seem to be systematic rather than random, and productive rather than merely imitative or rote learned. This summary seeks to demonstrate that child language is structured from the start, that it soon takes on a hierarchical structure, that it tends to be regular, that the structures change with age, and that they do not always correspond to adult structures.

Two-Word Utterances

To begin: One cannot speak about grammar until the child starts putting two words together to make primitive sentences. This happens typically somewhere around 18 months of age. Several investigators have dealt with this level (Braine, 1963a; Brown & Fraser, 1963; Miller & Ervin, 1964), and since their findings have been remarkably similar it is possible here, for descriptive purposes, to speak of the generic, typical, two-word-utterance child.

The growth of such two-word utterances is at first slow, but rapidly accelerates. For example, the following are figures from the speech of one child (Braine, 1963a); the cumulative number of *different* two-word combinations recorded in successive months was 14, 24, 54, 89, 350, 1400, 2500+. Clearly, we are dealing with very large numbers of new combinations, produced in a short time span.

Distributional analysis reveals that these utterances are not random or unstructured juxtapositions of two words; rather, two *classes* of words can be discerned. There is a small class of what have been called "pivot words" by Braine (1963a) or "operators" by Miller and Ervin (1964), and a large, open class of words, many of which were previously one-word utterances. For example, a child may say things like: *bandage on*, *blanket on*, *fix on*, *take on*, and many other sentences of this type. The word *on* is a sort of "pivot" here--it is always in second position, and a large collection of words can be attached to it. The child may also say things like: *allgone shoe*, *allgone vitamins*, *allgone outside*, and *allgone pacifier*. In this case one can say that there is a pivot in first position--*allgone*--which is followed by a large class of words in the child's speech.

On distributional grounds, then, it seems that one of the classes is small and contains words of high frequency in the child's speech. The membership of this class is stable and fairly fixed; these words can be called pivots because other words can be attached to them. A pivot word may be the first or the second number of a two-word sentence--but whichever it is, its position is fixed. The membership of the pivot class expands slowly--that is, few pivots enter each month. The other class is large, open, and contains all the words not in the pivot class. All of the words in this open class also occur as single-word utterances, but some of the pivots never do. Table 6 presents a sample of part of the pivot grammar of one child (McNeill, 1966b, p. 22). On the left is the total list of first-position pivots (there are nine of them); on the right is a partial list of the open class (which may contain hundreds of words). Generally (with some few exceptions), any of the words on the left can be combined with any of the words on the right to form a sentence in this child's language.

Table 6. Fragment of Pivot Grammar of One Child

allgone	boy
byebye	sock
big	boat
more	fan
pretty	milk
my	plane
see	shoe
night-night	vitamins
hi	hot
	Mommy
	Daddy
	.
	.
	.

Somewhat later, words from the open class can also be combined in two-word sentences, but the sentence position of these words is not fixed. That is, taking the word *car* as an example (Braine, 1963a), one can find utterances like *man car* (with *car* in second position), meaning, "a man is in the car," and also *car bridge* (with *car* in first position), meaning, "the car is under the bridge."

An important datum at this stage, and later stages, is the fact that many of the child's utterances--although consistent with *his* system--do not directly correspond to adult utterances, and do not look like reduced imitations of adult utterances. The pivot stage is rich with charming examples of such childish utterances (Braine, 1963a): *allgone sticky* (after washing hands), *allgone outside* (said when door was shut, apparently meaning, "the outside is all gone"), *more page* (meaning, "don't stop reading"), *more wet*, *more car* (meaning, "drive around some more"), *more high* (meaning, "there's more up there"), *there high* (meaning, "it's up there"), *other fix* (meaning, "fix the other one"), *this do* (meaning, "do this").

The evidence is that even at this early stage children can produce and understand an endless variety of sentences, most of which they have never heard before.

Hierarchical Constructions

Already at the beginning of the three-word stage it is possible to analyze sentences in terms of immediate constituents, or structural subunits. Hierarchical constructions emerge when a pivot construction comes to replace one of the open-class words in an open-open sentence (Braine, 1963a), as shown in Tables 7a and 7b.

Table 7a. Substitution of Phrase for First Member of Open-Open Sentence

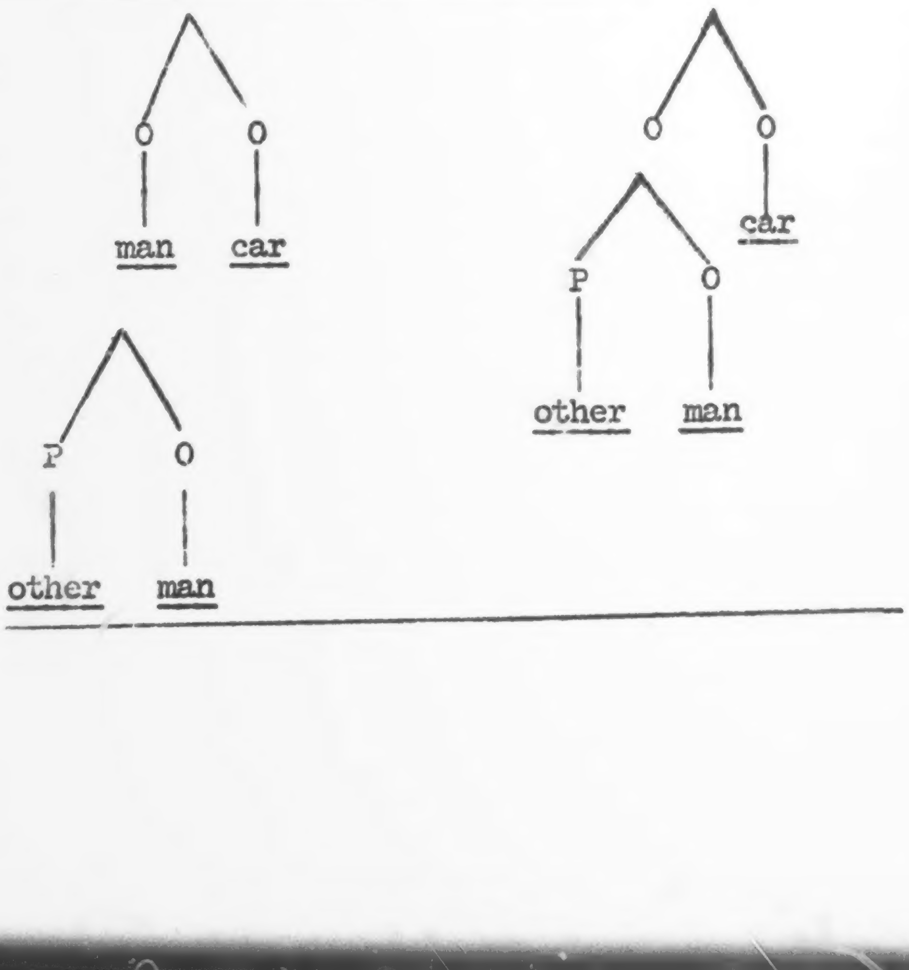
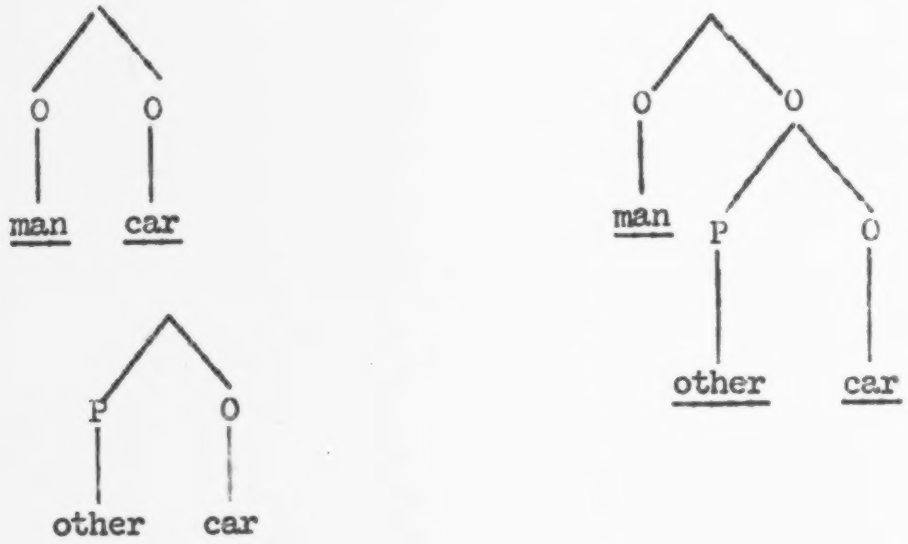


Table 7b. Substitution of Phrase for Second Member of Open-Open Sentence



In Table 7a, the pivot construction *other man* can serve as a phrase in place of *man* in the open-open sentence *man car*, giving the sentence *other man car*, meaning, perhaps, "the other man is in the car." In Table 7b, conversely, the pivot construction *other car* can replace *car* in the same open-open sentence, giving the sentence *man other car*, perhaps meaning, "the man is in the other car." That these sentences are hierarchical is clearly shown in the fact that the tree diagrams have some depth. That is to say, they are not just strings of three words; rather, each of these sentences is a string of two units, one of which can be replaced by a phrase of two words.

In later stages of development a number of word classes can be successively separated out on distributional grounds, and these can be combined into constituent phrases in increasingly complex hierarchical phrase structure sentences. An important example from a later period is the emergence of noun phrases, or longer sequences of words which have the same privileges of occurrence as individual nouns in the child's speech, as shown in Table 8.

Table 8. Emergence of Noun Phrases*

EARLIER SAMPLES	LATER SAMPLES
That *factory*.	That *a factory*.
That *flower*.	That *a blue flower*.
That *car*.	That *a your car*.
Where *scissors* go?	Where *Mommy scissors* go?
Horsie stop.	*A horsie* stop.
Put *gas* in.	Put *a gas* in.
Put *hat* on.	Put *the red hat* on.

* Illustrative examples based on Brown and Bellugi (1964), and on unpublished data of Brown et al. The utterances appearing together in the same column were not all produced at the same age; the important distinction for a given pair is "earlier-later."

Note in Table 8 that the noun slot can be filled with a noun phrase, and that the resulting longer sentence is sometimes deviant from the point of view of adult grammar. There is, for example, no clear adult model for such utterances as *Put a gas in* or *That a your car*.

Hesitations, according to Brown and Bellugi, also provide evidence that noun phrases function as units in the child's speech:

> The noun phrase has a kind of psychological unity. . . . Consider the sentence using the separable verb *put on*. The noun phrase in "Put the red hat on" is, as a whole, fitted in between the verb and the particle even as is the noun alone in "Put hat on." What is more, however, the location of pauses in the longer sentence, on several occasions, suggested the psychological organization: "Put . . . the red hat . . . on" rather than "Put the red . . . hat on" or "Put the . . . red hat on." In addition to this evidence the use of pronouns suggests that the noun phrase is a psychological unit (1964, p. 150).

The latter point is supported by examples of noun phrases replaced by pronouns (e.g., *Made a ship*, *Made it*) and pronouns and noun phrases used in the same utterances (e.g., *Mommy get it ladder*, *Mommy get it my ladder*) (Brown & Bellugi, 1964).

Regularizations

Another area in which consistently deviant utterances appear is in the overregularization of inflections. It is common knowledge, for example, that children say things like *comed*, *breaked*, *goed*, *doed*, and so on. That is, the irregular (or strong) verbs are inflected for past tense in the same manner as the regular (or weak) verbs. The sequence of inflectional development, however, is rather unexpected, and demands an explanation.

In all of the cases which have been studied (and these are children of homes where standard English is spoken, and are usually first-born children) the first past tenses used are the correct forms of irregular verbs--*came*, *broke*, *went*, and so on. (These are, incidentally, the most frequent past tense forms in adult English speech.) As soon as the child learns only one or two regular past tense forms of weak verbs--like *helped* and *walked*--he immediately replaces the correct irregular past tense forms with their incorrect overgeneralizations from the regular forms. In fact, in some cases, the correct irregular forms are replaced *before* one hears the use of regular forms in the child's speech: apparently it is sufficient that a child hear and understand the regular past tense inflection. Thus children actually say *it came off*, *it broke*, and *he did it* before they say *it comed off*, *it breaked*, and *he doed it*. Even though the correct forms may have been practiced for several months, they are driven out of the child's speech by the overregularization, and may not return for years. This is just one example of a widespread phenomenon, noted by investigators of child speech in many languages (Slobin, in press).

Another interesting example comes from the work of Ervin-Tripp and Miller. Their subjects, like most English-speaking children, regularized the plural of *foot*. Some children would say *foots*; others would say *feets*. Ervin-Tripp reports (Ervin, 1964, p. 175): "Very few of the children fluctuated between *foot* and *feet*, so although the word *feet* must have been heard by the children, we can clearly see a regularizing influence. If imitation alone were at work, we would have expected fluctuation between *foot* and *feet*." At a somewhat later stage, these children learned syllabic plurals, such as *box-boxes*, and replaced the earlier plural *foots* with a new analogic form, *footses*. Or other children, upon learning the pluralization *glass-glasses*, replaced *foots* with *footiz*. Ervin-Tripp concludes that "even highly practiced, familiar plurals may be temporarily changed in form by overgeneralization of new patterns" (Ervin, 1964, p. 177).

Similar phenomena are seen repeatedly in Russian child language, where the abundance of inflections allows for many more overgeneralizations than in English. Again and again a form which has been highly practiced will suddenly be driven out by another, more regular form, and only much later will a proper balance be achieved (Gvozdev, 1949; Popova, 1958; Slobin, 1966a, in press; Zakharova, 1958).

Negation and Transformational Development

The growth of grammatical transformations has, as yet, been little investigated. Outstanding contributions to this difficult area are Ursula Bellugi's analyses of the development of the negative (1964, 1967) and the interrogative (1965) in two of the children studied by Roger Brown's group. Her description of negation serves as basic data in this section. (Also see Klima & Bellugi, 1966.) The picture is complex, and is only sketched briefly here. Especially striking is the diversity of transitory sentence types, many of them quite different from adult forms of negation.

The earliest form of negation in English child speech, and in many other languages as well (McNeill & McNeill, 1966; Slobin, in press), is simply affixation of a negative element such as no or not to a childish sentence, as shown in Table 9. These sentences are quite unlike anything in adult speech. Even those which superficially resemble adult negative sentence--like No sit there--are different in an important respect.

Table 9. Negation Stage I[*]

No...wipe finger
More...no.

Not...fit
No singing song
No wash
No drop mitten.

No mitten.
No sit there.
No play that.
Wear mitten no.
No David fun play?

No sit there has the same order of elements as the adult sentence, No, I won't sit there, but the intonation contours are different. The adult sentence has falling intonation on no and a pause between no and the rest of the sentence. The child sentence has no pause and a single intonation contour for the entire utterance. The other forms in Table 9 have no obvious adult model.

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[*] All examples in this section are taken from Bellugi (1964), and are drawn from the recorded speech of two children ("Adam" and "Eve"). Adam was 29 months old at Stage I, and Eve 21. Periods between stages are from three to six months. Both children went through roughly the same initial stages. (Only data from Adam are available for Stage IV.)

In the second period, three to six months later (depending on the child investigated), the early negation forms of the first period are still present, but there are many new forms as well, as shown in Table 10. Note the use of the negated auxiliaries *can't* and *don't* in Table 10.

Table 10. Negation Stage II

I can't see you.
...so you can't see.
We can't talk.

I don't sit on Dick coffee.
I don't want it.

I don't know his name.

Don't want me pull it?
Why not?
Why not me sleeping?
Why not...cracker can't talk?
Why not you looking right place?
Why not me can't dance?
Why not me get hit?
Why not he eat?

Don't leave me.
Don't want wear it.
Don't wait for me.
Don't...wake me up...again.

That no fish school.
That no Mommy.
There no squirrels.

No...Rusty hat.
Book say no.
Touch the snow no.
This a radiator no.

I want not envelope.

At this stage, however, these auxiliaries are used only in the negative; there are no affirmative sentences using *can* or *do* as auxiliaries. Table 10 also shows negative questions beginning with *why not*, often followed by a negative sentence. Double negatives of this sort are not found in the speech of the children's parents. At this stage there are also negative imperatives beginning with *don't*, and sentences like *That no fish school* and *There no squirrels*, which seem to be reduced versions of negative copular sentences occurring in adult speech, with the copula missing.

By the third stage, presented in Table 11, the early negation form of simply affixing *no* or *not* to a sentence has disappeared. Some sentences are now fully in correspondence with those of adult speech, even in regard to intonation, e.g. *No, it isn't*; *No, I don't have a book*. Negated auxiliaries are still used, but, at this stage, the auxiliaries also occur without negation. That is, the child says sentences like *I can see it* as well as sentences like *I can't see it*. Negation is used in copular sentences as before (e.g. *That not a clown*), but sometimes the copula is included at this stage (e.g. *I am not a doctor*). Note also the change in negative questions from the earlier period. The formula *why not + negative sentence* has been dropped. Questions like *Why I didn't see something?* and *Why he don't know how to pretend?* differ from the adult form only in that the order of pronoun and auxiliary remains to be inverted. Thus double negatives have dropped out (though a different sort of double negative appears in Stage IV). The first uses of indefinite determiners and pronouns with negation appear at this stage, as in *You don't want some sugar* and *I didn't see something*. These are similar to affirmative sentences in the child's speech: *I want some sugar* and *I see something*. Negative imperatives remain as before.

Table 11. Negation Stage III

No, it isn't.
That was not me.
I am not a doctor.

No, I don't have a book.

Paul can't have one.
I can't see it.
This can't stick.
We can't make another broom.

This is not ice cream.
This no good.
They not hot.
Paul not tired.
They not wet.
That not a clown.

I not crying.
He not taking the walls down.
That not turning.

Why you say, you don't want some bottles?
Why the kitty can't stand up?
Why he can't play with it?
Why he don't know how to pretend?
Why this doesn't work?

I don't want cover on it.
You don't want some supper.
You didn't eat supper with us.
I didn't see something.
Paul didn't laugh.

Don't put the two wings on.
Don't kick my box.
Don't touch the fish.

I not see you any more.
Ask me if I not made mistake.
Fraser not see him.

No, I don't have a book.

I gave him some so he won't cry.

For the fourth stage Bellugi only has data from one of the two children studied, the boy named Adam in the literature. Examples appear in Table 12. Note that many of the trends observed in Stage III continue, and that many sentences (though by no means all) are now in correspondence with those produced by the adult grammar. Double negatives appear again, but these are quite different from the double negatives of Stage II, which were negative questions beginning with *why not*. These disappeared in Stage III, where negative questions were formed with a simple *why*, rather than *why not*. The double negatives of Stage IV are based on use of negative indefinite pronouns and determiners (e.g., *nothing*, *nowhere*, *nobody*, *no*), and also sometimes reflect the fact that *some* is no longer used as a determiner and pronoun, as in *He can't have*

Table 12. Negation Stage IV

I can't push it back and forth.
You said you can't play with it.
You don't say you can't have it.
I hope he won't bother you.
It's won't hurt.
I can't get this thing in here.

I don't know how this goes.
I don't know what is missing.
I don't know what they are.
You don't know where you're going.
You don't like to be rolled into clay.
It's doesn't fall out.
He doesn't know where he's driving.
They doesn't cut my finger or anything.
I doesn't know how to put this together.
Cars doesn't get on tracks.
You didn't put it all the way through.
No, I didn't.

No, I not big boy.
I not big enough.
I am not a toy.
No, it's not.
That's no wheel.
That's not your deedee.
That duck isn't a very good driver.
Those are not your tires.
It's not black.
I wasn't talking 'bout it.
I not going to cut myself on that.
I not peeking.
Don't cry.
Don't do it on me.

I never used that color.
I never have one.
I never seen her.

I can't do nothing with no string.
He can't have nothing.
I can't go nowhere.
I can't punch no more.
It's wasn't no chicken.
Nobody won't recognize us.
I don't want no people to recognize me.
I never had no turn.
I didn't put no paint on.

Why it won't go up?
Why he can't drive very well?
Why you won't let nobody recognize you?
Why I didn't live in Italy?
Why you say that, you don't have it, again?
Why you couldn't find out?

Did I didn't mean to?
Do she don't need that one?
Did you take no cooking?

nothing. This situation also leads to triple negatives, such as I can't do nothing with no string.

It is clear that, in less than two years, the child's negation system has grown quite complex, and that it is not yet fully in accord with adult English. A similar picture emerges from Bellugi's analysis of interrogative development in these two children (1965; Klima & Bellugi, 1966): there is a great diversity of sentence types, with many short-lived forms and many constructions which seem cumbersome and awkward from an adult point of view; change is rapid; and by the time the child reaches school age his grammar differs negligibly from that of his parents.

Conclusions

On the basis of the data presented above, one may draw the following conclusions:

1) Early two-word sentences are structured. The structure can be characterized as a pivot structure, and it is used productively by the child.

2) With the advent of three-word sentences, the structure of many sentences is hierarchical. This is to say that constituent phrases function as units in the child's language.

3) Regular forms are overgeneralized, even to highly practiced forms.

4) There is a succession of short-lived devices for performing grammatical transformations such as negation or interrogation.

The themes underlying these four points are the rapidity of change and the frequent lack of obvious correspondence between child and adult grammatical constructions.

3.2.2. Implications and Suggestions for Cross-Linguistic Research

The above brief summary of some American research on grammatical development gives an idea of the rich and suggestive data which can be gathered from the sort of careful study of child language spelled out in this field manual. On the basis of findings such as these, we wish to obtain cross-linguistic data bearing on the following broad problems and questions:

General Expectations and Questions

1) The earliest form of grammatical structure to emerge is that of two-word "pivot structures," as described above. It is expected that child E, and perhaps also children G and H, will provide evidence in regard to this proposition. (The researcher may wish to study additional children at the two-word stage to ascertain the presence and/or prevalence of pivot structures. As a guide to the research time required, Braine reports that the analysis of pivot structures in the speech of one child, Steven, was based on material "obtained in twelve play sessions of about four hours total duration, spaced over a four-week period" [1963a, p. 3].)

2) Child language is productive and regular, as revealed by the generalization of grammatical principles (e.g. inflection, derivation, order) to new instances and early overregularization of given forms.

3) The order of emergence of grammatical devices for the expression of various semantic relations (e.g. plural,possessive, tense) in any given language is determined by such interacting variables as: (a) the formal complexity of the grammatical device, (b) its frequency of occurrence in adult speech, and (c) the complexity of the semantic relation expressed. (For example, the conditional is late to develop in Russian child speech [Gvozdev, 1949], although the grammatical means for its expression are quite simple; this is probably because of the conceptual difficulty underlying the notion of conditionality. On the other hand, the basic grammatical relations expressed in active and passive sentences in English are identical, yet the passive is much later to develop--no doubt because of its formal complexity and lower frequency of occurrence.)

4) When only one pole of a grammatical distinction is "marked" in a language (e.g. English plural), one would expect the "unmarked" form to appear first in child speech, marked features emerging later. Greenberg (1966) lists many marked-unmarked pairs that appear universally.

5) On the basis of limited cross-linguistic evidence--chiefly Russian--one would expect that, if a given grammatical function can be expressed by either word order or inflection, order is preferred over inflection at the earliest stages of grammatical development.

6) Grammatical competence is reflected both in speech and comprehension. It could be that, for given aspects of competence, passive performance (comprehension) precedes active performance (speech).

7) Verbal interaction with adults plays an as-yet-unspecified role in grammatical development. We know that, at a certain stage in development, children tend to imitate adult speech, and adults tend to expand child speech (see Section 3.4.3.3; and Slobin, 1967). In imitating adult

utterances, children tend to retain the rhythm, intonation, and order of elements of the model, but omit given elements as a function of such factors as their audibility, position in sentence, familiarity, and others. Adults tend to fill in omitted elements in repeating (expanding) child utterances. The nature and role of cycles of child imitation and parental expansion is in need of cross-cultural elucidation.

8) The system underlying a child's speech at any stage is consonant with the linguistic universals of adult language. This means, for one thing, that the child's speech always reflects the "basic grammatical relations," as discussed by McNeill (1966a,b). It also means that corpora of child speech in various languages should be searched for the sorts of linguistic universals described by Greenberg (1963, 1966). As Miller and Ervin-Tripp have suggested:

> It is possible that certain types of patterns or constructions are more compatible than others. Greenberg has pointed to correlated structures in languages and we might find some patterns in the individual differences between the children at various stages, but our evidence is scant at present (Miller & Ervin, 1964, p. 29).

For example, several of the following universals, drawn from Greenberg's longer list, may find their reflection in child speech (Greenberg, 1963, pp. 61-75):

> Universal 1. In declarative sentences with nominal subject and object, the dominant order is almost always one in which the subject precedes the object.
>
> Universal 5. If a language has dominant SOV order and the genitive follows the governing noun, then the adjective likewise follows the noun.
>
> Universal 10. Question particles or affixes, when specified in position by reference to a particular word in the sentence, almost always follow that word. Such particles do not occur in languages with dominant order VSO.
>
> Universal 12. If a language has dominant order VSO in declarative sentences, it always puts interrogative words or phrases first in interrogative word questions; if it has dominant order SOV in declarative sentences, there is never such an invariant rule.
>
> Universal 13. If the nominal object always precedes the verb, then verb forms subordinate to the main verb also precede it.
>
> Universal 14. In conditional statements, the conditional clause precedes the conclusion as the normal order in all languages.

3 mij.

Universal 16. In languages with dominant order VSO, an inflected auxiliary always precedes the main verb. In languages with dominant order SOV, an inflected auxiliary always follows the main verb.

Universal 17. With overwhelmingly more than chance frequency, languages with dominant order VSO have the adjective after the noun.

Universal 18. When the descriptive adjective precedes the noun, the demonstrative, and the numeral, with overwhelmingly more than chance frequency, does likewise.

Universal 19. When the general rule is that the descriptive adjective follows, there may be a minority of adjectives which usually precede, but when the general rule is that descriptive adjectives precedes, there are no exceptions.

Universal 20. When any or all of the items (demonstrative, numeral, and descriptive adjective) precede the noun, they are always found in that order. If they follow, the order is either the same or its exact opposite.

Universal 25. When number agreement between the noun and verb is suspended and the rule is based on order, the case is always one in which the verb precedes and the verb is in the singular.

Universal 43. If a language has gender categories in the noun, it has gender categories in the pronoun.

In the light of the above considerations, it would be valuable to devote detailed study to the emergence of special grammatical systems, especially those common to all or most languages. The following is a partial list of systems deserving of careful attention:

Special Grammatical Systems

1) Negation. Bellugi's analysis, presented above, shows some of the richness and interest of the development of negation. The initial stage of clause negation should be further checked cross-linguistically: in all cases known to date (about 20 diary studies), the first negative form is negative + sentence or sentence + negative.

2) Interrogation. Yes-no questions and "wh" questions are generally signaled by different means. How do they develop in ontogenesis? Is an intonational signal universally the earliest form of yes-no question?

3) Inflections. This is a particularly rich area for study of the determinants of overregularization.

4) Auxiliary verbs. When present in a language, they present an important area for the study of late acquisition of grammatical processes.

5) *Embeddings*. Embedding provides valuable examples of the role of formal complexity in determining the rate and order of development of particular grammatical forms. "Pre-embeddings" are also of interest in this regard. These are pairs of sentences which, if a child had an embedding transformation, would be the matrix and constituent parts of an embedded sentence (e.g. *Want truck*. *Truck go* -- the matrix and constituent for *Want truck that go.*).

6) *Relative clauses*. These structures may also be late to emerge. (Late-occurring grammatical errors are of special interest in revealing the psycholinguistic processes underlying language acquisition.)

7) *Conditional sentences*. As pointed out above, the conditional should be late because of the complexity of the underlying notion expressed. In most languages, the *if*-clause precedes the main clause. It would be interesting to know if this is a universal feature of early speech.

8) *Attributive adjectives*. If used by the language, they should be late to emerge. It would be interesting to compare attributive adjectives to relative-clauses.

9) *Quantifiers*. This is another category possessing interesting semantic aspects. Quantifiers are especially interesting if the language has classifiers used in conjunction with quantification. In such a case, special attention should also be paid to adults' use of classifiers in addressing children. Are they used in speaking to very young children?

10) *Dummy elements*. What dummy elements in the phrase structure are universal (e.g. passive, imperative, zero, negative)? How do they emerge in child speech? (Note that the presence of a contrastive pattern is necessary to judge the presence of such elements; i.e. a difference in meaning must correspond to a difference in form.)

11) *Word order*. What grammatical functions does word order serve in various forms of child language? How does the child's use of order relate to the role of order in the adult language?

12) *Idiosyncratic features*. Are there special features which occur in children's grammars, but which do not appear in the model? For example, are there unusual rules for plurals, non-copular predications, transitivizers, etc.? Are common devices, such as pivots, reduplication, and others, used for similar purposes by children growing up in different speech communities?

3.3. SEMANTICS

The development of word meanings cannot be separated from the many complex problems involved in studying cognitive development in general. Nor can the study of meaning, in most cases, be separated from the study of specific domains--kinship, colors, plants, etc. The fields of cognitive developmental psychology and ethnographic semantics are beyond the scope of the field project proposed in this manual. Nevertheless, the field worker would do well to have some familiarity with the techniques and findings of these disciplines. Basic readings are suggested below; further materials can be found in the references cited and in Ervin-Tripp and Slobin (1966).

3.3.1. Language and Cognitive Development

The role of language in cognitive development is much debated in current developmental psychology. Major American and Soviet psychologists (Bruner et al., 1966; Luria, 1961; Vygotsky, 1962) have stressed the leading role of language in the growth of the mind; while Piaget and his associates in Switzerland (Flavell, 1963) and also Furth in the U.S. (1966), have minimized the role of language, placing greater emphasis on factors of maturation and general experience. The works just cited will provide the field worker with an excellent sample of the range of theory and research underlying these positions.

In the recent book Studies in cognitive growth (Bruner et al., 1966), and in previous publications (e.g. Bruner & Olver, 1963), a number of useful techniques for the study of language and cognitive development are described and tested cross-culturally. Some of these techniques deal with sorting and grouping of objects (or their pictures or names), revealing interesting changes in grouping strategies with age. For example, if children are given a collection of pictures to be sorted into categories, the younger children tend to sort on the basis of perceptual features, such as color, size, pattern, and so on; while the older children sort on the basis of some superordinate concept term. A six-year-old may group together boat, ruler, doll, bicycle, scissors, saw, shoe, gloves, barn, candle, pie, nails, taxi because: "Some are red, some are gold, and some are yellow. One is white, some are brown, and some are blue." Or he may group together screw, ruler, nails, candle, hammer, taxi, coat, scissors, sword, bicycle because: "They have a part that you get dressed with, or they have holes in them, or you use them for tools, taxi goes with bicycle." Bruner et al. point out that: "Increasingly with development the child isolates one or more attributes that are common to all the items in the group: 'They are all tools,' or 'You can eat them,' or 'They can all move,' and so on" (1966,

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Section 3.3 was written by Dan I. Slobin and Brian Stross.

pp. 83-84). Response to the vividness of the way things look may prevent superordinate grouping for young children since what is most vivid perceptually may vary greatly from one moment of comparison to the next. Perhaps the increasing ability to code and compare attributes of objects linguistically acts to free the child from the immediate perceptual impact of one attribute or another.

The picture is not as simple as this, however. Note that both six- and eight-year-olds have well-developed linguistic systems, but their means for sorting pictures into categories are quite different. Simply having language is not enough--something else must change with growth (as Piaget and his co-workers would point out). Bruner's book suggests that children must be trained--chiefly through formal school instruction--to use language in ways which free them from attending to concrete, perceptual attributes of things. In regard to the picture-sorting task, for example, he says that the shift from the use of perceptual cues to more abstract, superordinate grouping criteria "is not a universal property of 'growing up'" (p. 85). A number of the experiments reported in Studies in cognitive growth were carried out in a variety of cultural settings, leading to the conclusion that

> the "natural" terminus of growth depends to a very considerable extent on the pattern imposed by the culture. The techniques used [here} have, in modified form, been used in studies of children in Alaska, Mexico, and Senegal . . . and it is plain that school children in Dakar or Mexico City look very much like the school children of [suburban Boston]. But it is equally plain that the village child of rural Mexico and the unschooled Wolof of Senegal seem very different . . . much more perceptually oriented (p. 85).

Bruner et al. suggest that the important determiner of the use of language in cognitive growth is the school. In school, children must learn to use language in the absence of immediate context. This is true especially of learning to read and write, but it applies to a broader range of linguistic tasks which a child must learn to perform in a school setting. These notions are in great need of cross-cultural validation, but begin to lead us quite far from our present goals of studying the acquisition of communicative competence per se. Before leaving the topic, however, it would be worthwhile to touch briefly upon the views of several other theorists.

Hans Furth, in a book called Thinking without language: Psychological implications of deafness (1966), has demonstrated that much of cognitive development can proceed normally in the absence of language. He concludes:

> By generalizing the results of the studies summarized above and applying them to a theoretical position on the influence of language on intellective development, the following is suggested:

> (a) Language does not influence intellectual development in any direct, general, or decisive way. (b) The influence of language may be indirect or specific and may accelerate intellectual development: by providing the opportunity for additional experience through giving information and exchange of ideas and by furnishing ready symbols (words) and linguistic habits in specific situations.
>
> From this position it should follow that persons, deficient in linguistic experience or skill (a) are not permanently or generally retarded in intellectual ability, but (b) may be temporarily retarded during their developmental phase because of lack of sufficient general experience and (c) they may be retarded on certain specific tasks in which available word symbols or linguistic habits facilitate solution (1964, p. 160).

Piaget, like Bruner and Furth, has spoken of the role of communication with others in aiding cognitive development, although he agrees with Furth in not assigning a directly causative role to language in this regard. His theory of cognitive development stresses the importance of a shift from an early egocentrism to a later ability to conceive of phenomena from a variety of points of view:

> I have used the term egocentrism to designate the initial inability to decenter, to shift the cognitive perspective. . . . Cognitive egocentrism . . . stems from a lack of differentiation between one's own point of view and the other possible ones . . . In egocentric speech the child speaks according to himself. [This is] the only valid meaning of egocentrism: the lack of decentering, of the ability to shift mental perspective, in social relationships as well as in others. Moreover, I think that it is precisely cooperation with others (on the cognitive plane) that teaches us to speak according to others and not simply from our own point of view (1962, pp. 3-8).

At first glance, this discussion may seem to bear more on problems of formal education than on problems of semantics. But, in regard to semantic development, it is difficult indeed to separate the acquisition of meanings from the acquisition of knowledge. And it is precisely for this reason that--except for the discussion of the acquisition of vocabulary in Section 1.3--we have chosen not to include research on topics of semantic development among the core problems of the field study outlined here.

In conclusion, one might bear in mind Bruner's summary of five possible sources of language-influenced intellectual development:

> (a) the use of words as invitations to form concepts; (b) contingent dialogue between adult and child; (c) the importance of "school" as an innovation; (d) the development in a culture of

> "scientific" concepts; (e) the possibility of conflict between modes of representation (Bruner et al., 1966, p. 62).

These five aspects of language use in cognitive development vary with culture and class, interact with one another, and can influence intelligence in many ways. The alert fieldworker will, no doubt, be alert to a number of these multifarious questions in observing the children whom he studies.

3.3.2. Componential Analysis

Important strides have been made by linguistic anthropologists in the study of referential systems by analysis of the componential structure of contrast sets (Conklin, 1962; Frake, 1962; Goodenough, 1956; Hammel, 1964; Lounsbury, 1956; Romney & D'Andrade, 1964b; Wallace & Atkins, 1960). The most successful of these analyses have occurred for discrete components, as in the case of sex and generation in kinship systems. Also, the semantic markers in recent theoretical lexicography (Katz & Fodor, 1963; Weinreich, 1966) tend to be discrete. Some behavioral predictions have been made and tested on the basis of cognitive differences between varying systems (Romney & D'Andrade, 1964a).

However, measures of reference are in great need of refinement and elaboration, as Osgood has pointed out:

> The development of a satisfactory quantitative measure of denotative meaning appears to me to be one of the most important problems for contemporary psycholinguistics. . . . An adequate measure should reflect the multidimensional nature of meaning, should yield a quantitative measure of degrees of denotative similarity, should be completely general for all pairs of terms measured, and should meet the usual criteria or reliability, validity, and comparability across subjects and concepts (1964, p. 198).

We are very far from such measures at present. However, componential analysis comes closest to measuring attributes of word meaning--at least in given domains. The attempt is to find a few underlying dimensions--reminiscent of Jakobson's distinctive features in phonology--upon which all of the kinship terms (or plant terms, or disease names, or what) of a culture can be placed.

An example of the type of analysis employed can be given by Wallace and Atkins' (1960) analysis of American kin terms (but note that this is not the only possible analysis, as Romney and D'Andrade have emphasized [1964b]). We are concerned here with discovering the semantic components which distinguish between the meanings of basic English kin terms (limiting ourselves to "blood relatives"). In order to carry out this sort of analysis we must begin by listing all of the kin terms used in the society under study--in this example, our own, but the problems of eliciting the relevant information in a field situation should not be overlooked. For simplicity, the analysis here is limited to two ascending and two descending generations, ignoring the distinctions between "numbered" cousins (first, second, once removed, etc.) and the distinctions introduced by the modifiers "great" (as in "great aunt") and "grand" (as in "grand niece") when used as separate words. This gives us the terms: father, mother, grandfather, grandmother, son, daughter, grandson, granddaughter, uncle, aunt, nephew, niece, brother, sister and cousin. Wallace and Atkins point out:

> We observe that all but one of these terms (cousin) specifies sex of relative; some specify generation; all specify whether the relative is lineally or nonlineally related to ego; and nonlineal terms specify whether or not all the ancestors of the relative are ancestors of ego [brother and sister, mother and father], or all the ancestors of ego are ancestors of the relative [brother and sister, son and daughter], or neither. From these observations we hypothesize that three dimensions will be sufficient to define all the terms (p. 61):
>
> A. Sex of the relative (male = a_1, female = a_2)
>
> B. Generation of the relative (two generations above ego = b+2, one generation above ego = b+1, ego's generation = 0, one generation below ego = b-1, etc.)
>
> C. Linearity: lineal = c_1 (includes ancestors or descendants of ego), co-lineal = c_2 (non-lineals, all of whose ancestors include, or are included in, all the ancestors of ego), ab-lineal = c_3 (blood relatives neither lineal nor co-lineal).

The matrix of these three dimensions can be represented in the following diagram:

	c_1		c_2		c_3	
	a_1	a_2	a_1	a_2	a_1	a_2
b+2	grandfather	grandmother	uncle	aunt	cousin	
b+1	father	mother				
b0	[ego]		brother	sister		
b-1	son	daughter	nephew	niece		
b-2	grandson	granddaughter				

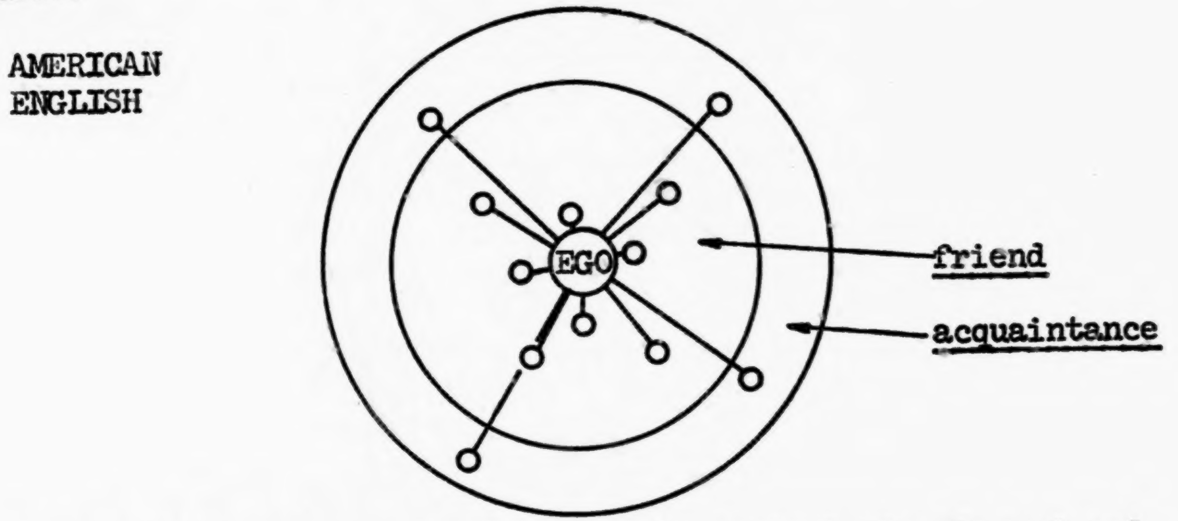
> Evidently each term has been so defined, with respect to the components selected, that no term overlaps or includes another; every component is discriminated by at least one term; and all terms can be displayed on the same paradigm. We do not wish to argue that this is the best representation; only that it is adequate to define the set of terms chosen (p. 62).

Note how a componential analysis of this sort could be usefully employed in contrasting the American kinship system with that represented by other languages (or, for that matter, comparing the systems used by children with those used by adults). For example, German makes a sex distinction (a_1-a_2) in regard to cousins, having a term for male cousin Kusin, and a female cousin, Kusine, where English makes no distinction. The German system is thus clearly not very far from our own: we do not have to add a new component; merely extend the application of an English component (sex) to another dimension (ablineality) which is already used in our system. Contrast the German example with the Turkish kin term ablá, 'older sister.' We have no way of fitting this into the English diagram, because we have no component for age (only for generation). In order to fit the Turkish term into such a diagram, it would be necessary to add a new semantic component, "older than ego."

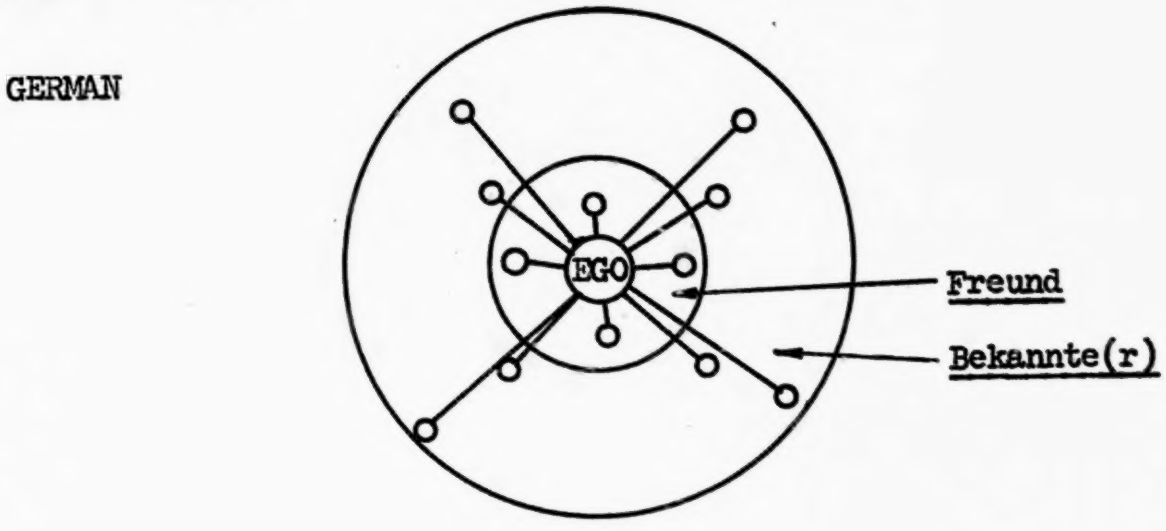
The above example should give some idea of the method and implications of componential analysis. In some field situations it would certainly be a valuable approach to the analysis of children's structures of given semantic domains. A crucial question in regard to this method, however, is that of the range of its usefulness. What other domains are susceptible to this sort of analysis? There have been successful analyses of other domains, like plant and animal taxonomies, but the range of possibilities seems to be limited. The analysis seems to work best when we are dealing with discretely different referent classes. For example, a person is either male or female, either sibling or not, and so on. Each of these terms has a clearly distinguishable, objectively definable referent. It may also be possible to apply componential analysis to more elusive domains, like social relations. For example, what is the distinction between the verbs give and bestow? It seems that one bestows when giving to social inferiors. Perhaps, then, we can say that "status" is a component, or distinctive feature of certain verbs (as it is of second-person pronouns in languages which make the "polite-familiar" distinction, such as the tu-vous of French, the du-Sie of German, etc. Note also that verbs are sometimes overtly marked for such distinctions--e.g. as in Navaho).

What sorts of domains seem to present difficulties in componential analysis? Take the word chair as an example. It seems to refer to a class which shades off at its boundaries in all directions. When the back of a chair gets low enough, or its legs get long enough, it becomes a stool; when the seat gets wide enough, it becomes a bench; and so on. But there is no way in which an uncle can shade off into an aunt. Rather than having discrete components underlying the meaning of chair, then, we seem to be dealing with the intersection of a variety of dimensions--and these dimensions are very difficult to specify.

The terms friend and acquaintance are another set which seem to differ in terms of degree, rather than presence or absence of a given component. Diebold (unpublished) has diagrammed these English terms on the basis of relative "social distance" between ego (the speaker) and various alters. Those within the inner circle we call friends; those in the outer circle, acquaintances. The relative length of the line connecting ego to various alters (small circles) represents social distance.



Compare the English terms to their German equivalents, Freund and Bekannte(r). The German terms translate as friend and acquaintance, respectively, but differ in terms of usage, according to Diebold. The following diagram shows that Germans restrict usage of Freund to closer "friends" than we do; that is, many of the people we refer to as friends would count only as acquaintances in German. (Perhaps this is part of the reason that Germans may consider Americans a bit brash; we may seem too quick to establish behaviors which count as more intimate to the German.) Note that the two arrays of actual people represented in the American and German diagrams are identical; but the definitions of the terms are different. It is hard to specify a semantic "component" which distinguishes between the American friend and the German Freund. Again, the distinguishing attribute seems to be one of degree, or position along some dimension.



It seems clear from a variety of semantic analyses that the notion of semantic markers, or semantic primes, is a useful one. We are still a long way from adequately characterizing a set of semantic universals, but it already seems that some of them will be discrete categories, like the components revealed in componential analysis. Some of them will probably be dimensions (like status, social distance, hue, and so on). It would be of value to discover the sorts of underlying dimensions and components used by children of different ages and cultures to classify such universally important domains as kin (Lounsbury, 1956; Romney & D'Andrade, 1964a; Wallace & Atkins, 1960), social relations (Befu & Norbeck, 1958; Brown, 1965; Brown & Ford, 1961; Brown & Gilman, 1960; Fischer, 1964; Foster, 1964; Friedrich, 1966; Howell, 1967; Slobin, 1963), color (Conklin, 1955; Landar et al., 1960; Lantz & Stefflre, 1964), diseases (Frake, 1961), time (Bohannon, 1953), space, plants, animals, foods, and the like. (A valuable guide to eliciting procedures is Frake's "Notes on queries in ethnography" [1964b].) In undertaking such problems, the fieldworker has a good chance not only of enriching ethnosemantic and developmental psychological knowledge, but also of developing useful new techniques for use in future studies.

3.4. THE SOCIAL SETTING OF LINGUISTIC BEHAVIOR

3.4.1. The Relation of Linguistic to Social Categories

Recent empirical investigations in sociolinguistics have provided important evidence on the effect of extralinguistic influences on language behavior and language acquisition. It has been shown that both the structure and the stylistic aspects of messages can be affected by a variety of environmental, social and psychological conditioning factors (Cazden, 1965; Ervin-Tripp, 1964; Ferguson, 1959; Ferguson and Gumperz, 1960). Although there is little controversy about the evidence itself, the more general question of the relationship between linguistic and social facts has hardly begun to be studied and it will be a long time before we can expect a sociolinguistic theory as explicit as the present theory of language. Nevertheless since data collection always involves a degree of selectivity, it is incumbent on any field manual to make clear at least some of the criteria which underlie the selection process. Failure to do so will seriously affect the comparability of the results. Specifically the following questions need clarification: (1) How is social information coded linguistically? (2) What are the mechanisms by which social categories affect the communication process?

The Linguistic Coding of Social Information

The basic position with respect to the coding of social information was stated by Hymes (1961), who asserts that both language and language usage are structured and suggests that it is language usage rather than grammatical categories *per se* which most closely reflect social influences. This implies that from the sociolinguistic point of view every utterance has both social and referential meaning. The French sentence "asseyez-vous," for example, can be interpreted on one level as a request to the addressee to assume a sitting position, but it also implies something about the addressee's status vis-à-vis the speaker.

Even a brief look at the literature shows that features of any component or stratum of language structure may carry social meaning. Considerably more elaborate morphological status markers than the French can be found in Javenese (Geertz, 1960), Korean (Howell, 1967; Martin, 1964), and in many Asian languages. A possible English equivalent for the French "asseyez-vous" is the syntactic expression "won't you have a seat" (as contrasted with "sit down"). Other socially significant linguistic features include the suffix "-in" (Fischer, 1958), or purely phonetic features such as the degree of "*r*-lessness" and the relative vowel height in the New York pronunciation of words like "sure" or "more" (Labov, 1964). In bilingual societies, as Rubin (1962) has shown, social

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Section 3.4.1. was written by John J. Gumperz.

information is conveyed by the switch from one language to another. In other societies social conditions may require the use of dramatic performance styles rather than prose for the transmission of certain types of information (Gumperz, 1964b).

Although social meanings may be coded almost anywhere within the linguistic system, they always require the existence of one or more referentially equivalent synonyms. It is the speaker's selection among these variables, as Labov (1964) has called them, which conveys social information.

There is furthermore an increasing amount of evidence for the assumption that social variation is not simply a matter of variation among isolated alternates, but that social markers occur in clusters such that selection of one of a particular set of alternates in one part of an utterance restricts the freedom of selection among subsequent sets. Thus, if an American shows social variation among more or less diphthongized realizations of the vowel cluster /ay/ and also varies between "-ing" and "-in," selection of the less dipthongized vowel in "nice looking" also implies selection of the latter suffix variant. Social variation is thus governed by certain co-occurrence or co-variation constraints (Gumperz, 1964b). Since, as Joos (1960) has pointed out, these restrictions cut across the usual components of language, we have some justification for speaking of social variation as a selection among codes rather than a choice among individual variants. Such distinctions among social codes are most clearly marked in what we commonly recognize as bilingual societies; but even in monolingual societies, where codes are to a large extent isomorphic, co-occurrence constraints do operate and may be important.

For the purposes of this manual, it must further be pointed out that co-occurrence restraints are not ordinarily part of linguistic analysis. Where they are recognized, their existence seems to be assumed, rather than studied empirically. Since they have not been studied, control of the rules that govern them is not oridnarily regarded as part of the speaker's linguistic competence. A study of communicative competence, in the broader sense, however, must take account of such matters.

In addition to the questions raised in the sections on phonology and grammar, therefore, a study of language socialization should raise linguistic questions such as the following:

What is the degree of code differentiation and of internal language distance within the repertoire?
What is the nature of internal co-occurrence restrictions?
At what age does code differentiation appear?
When are co-occurrence rules learned?
What social conditions favor their learning?

The Relation of Linguistic to Social Categories

Most scholars visualize the relationship of linguistic to social categories as a match between closely connected but nevertheless conceptually independent systems. Language is regarded as a set of rules enabling speakers to process information from the outside world or to relate sounds to information. Social categories are seen as part of this outside world, along with physical surroundings, artifacts, beliefs, etc. Just as concrete objects are indentifiable through physical properties like shape, color, texture and weight, which are subject to independent measurements, so social facts are conceived as measurable by social indices independent of the communication process. Sociolinguistics as seen in these terms, is an attempt to delineate social structure and linguistic structure more clearly by correlating these independently measured variables; and to detect changes in these structures through changes in the correlated measures. The sociolinguist might thus take sociologically determined indices such as social class, educational background, rank, performance on attitude tests and attempt to establish statistically significant correlations between these and verbal behavior. Or he might study verbal performances of populations differing on any of these indices.

Correlation between speech and social categories has been well documented by many decades of research in dialectology, bilingualism, and language contact studies. In recent years, they have been validated by highly sophisticated statistical techniques. Correlations are our only means of generalizing about the behavior of large populations, and they have been useful in predicting such phenomena as short-term trends in language history. But they also leave a number of questions unanswered. Why, for example, do some socially highly differentiated societies show almost no detectable linguistic variation, while there are others in which such variation is very pronounced? Why does sociolinguistic variation correlate with socioeconomic status in some societies, with educational background in some, and with cultural background in others?

Perhaps the most important criticism of the correlation approach to sociolinguistics derives from Bernstein's discussion of "restricted" and "elaborated" codes (Bernstein, 1964). The linguistic features which mark Bernstein's distinction roughly correlate with differences in class; but his sociological analysis demonstrates important differences in the norms or social rules underlying the informants' communicative behavior, differences which affect their perceptions of social relationships. Bernstein goes on to show that although restricted code speakers are more frequently found among the lower strata, they are also found in certain upper-class groups. There is no means of explaining such subcultural differences by a correlational method.

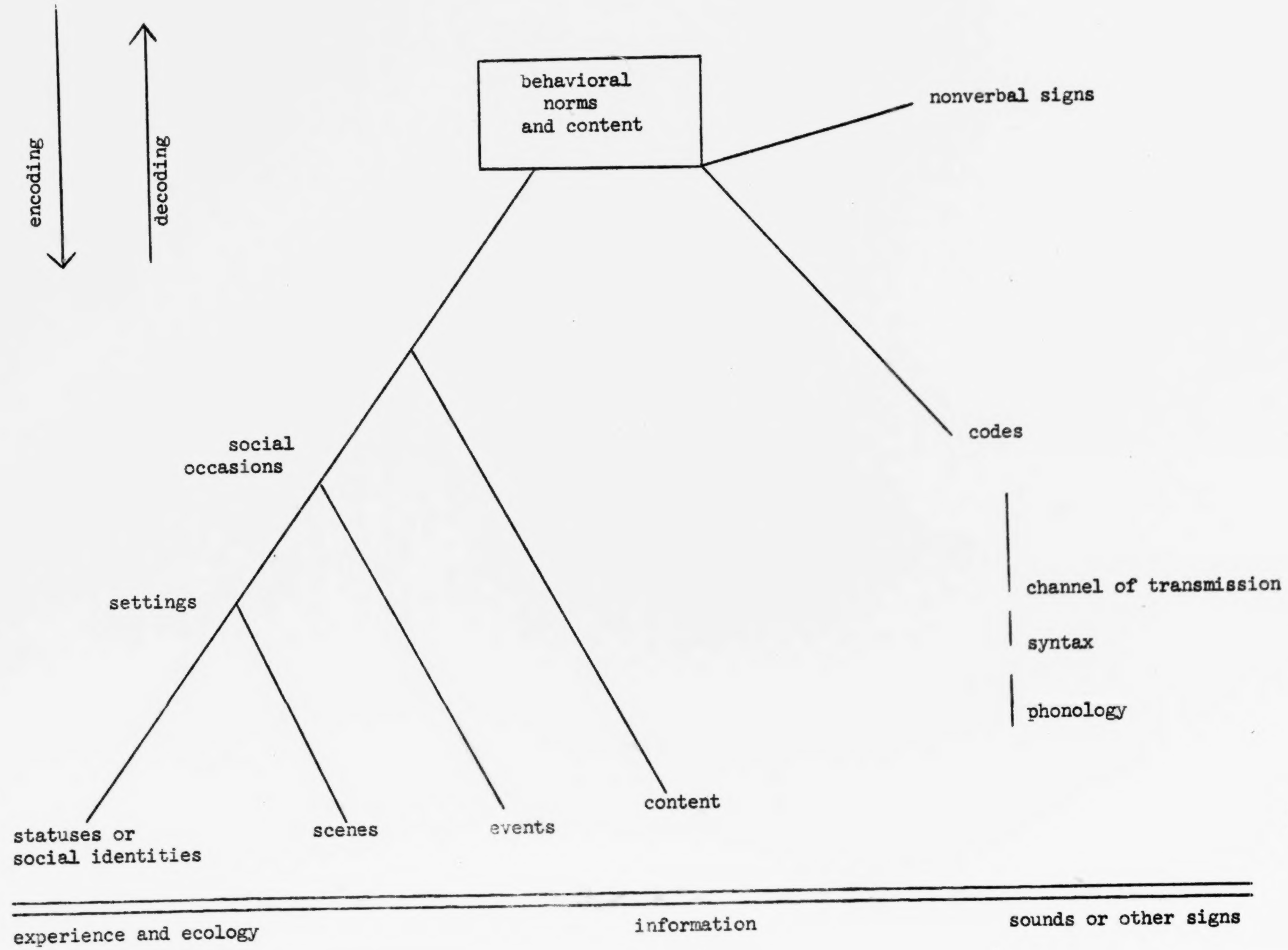
An approach to social theory which is somewhat more in line with sociolinguistic findings is the interactionist approach as exhibited in the writings of Goffman (1963), Garfinkel (1956), and Cicourel (1966). Interactionists deny the parallelism between social and physical measurement. They point out that information on social categories is obtainable only through the use of language. Sociological measurement, in their view, always involves both the informant's and the investigator's perception of the categories that are being measured. This perception is seen as subject to the same culturally determined cognitive processes that ethnographic semanticists have discovered as operative in human naming behavior. Just as the meaning of words is always affected by context, social categories must be interpreted in terms of situational constraints.

Concepts such as status and role are thus not permanent qualities of speakers; instead, they become abstract communicative symbols, somewhat like phonemes and morphemes. Like the latter, they can be isolated in the analyst's abstract model, but they are always perceived in particular contexts. The division between linguistic and social categories is thus obliterated. Communication is seen as a single process in which the speaker modifies stimuli from the outside environment in accordance with his cultural background and thus derives the communicative norms that apply to the situation at hand. These norms in turn determine his selection of verbal signs. The diagram on the next page is an attempt to represent some of the relevant stages in the communication process, as seen in these terms.

The double line represents the distinction between the communication process proper and the outside stimuli and signs which are transformed into communicative symbols through cognitive categorization. After the initial categorization stage any bit of content a speaker wishes to convey is first reshaped in terms of the social situational constraints shown in the dotted lines. These constraints,which are explained in more detail in Blom and Gumperz (1966),essentially involve the relevant statuses or social identities (Goodenough, 1965) of speakers and the rights and duties which apply to their relationships in particular social occasions. Behavioral norms derived in this decoding process then operate to select first an appropriate code or speech variety, then a channel of transmission (oral, written, poetry, prose, etc.). Codes and channel in turn operate in terms of syntactic and phonological rules which are finally encoded into sounds.

Note that the diagram reflects all of the factors usually listed in discussions of speech events (Ervin-Tripp, 1964; Hymes, 1961) but these are no longer regarded as independent variables. Rather they are arranged hierarchically as stages in a communication process, so that the previous stage always serves as the input affecting the selection rules in the next stage. It must be understood of course that selection never completely determines the actual form of a message. It merely restricts the speaker's choice among possible alternative modes of expression. Further selection among socially permitted alternates may then serve as a vehicle for the expression of individual meaning.

From the point of view of fieldwork, the significance of the interactional approach lies in the fact that social relationships become the


encoding
decoding
behavioral norms and content
nonverbal signs
codes
social occasions
settings
channel of transmission
syntax
phonology
statuses or social identities
scenes
events
content
experience and ecology
information
sounds or other signs

major social determinants of verbal behavior. Outside factors such as ecology, rank, educational background significantly affect verbal behavior only to the extent that they influence speakers' perception of their social relationships. The study of rules governing these relationships in social organizations, in the sense in which this term is used by Raymond Firth, Leach, Barth, and Garfinkel, becomes an important part of the sociolinguist's task.

In practical terms this means that if the sociolinguist wishes to achieve explanation, he cannot merely confine himself to comparisons of verbal performances with behavioral observation. He must employ all the ethnographer's methods for arriving at the underlying rules governing these performances. Important among these are participant observation, preferably by actually living in the community, the recording of life and family histories, and deep unstructured interviews focusing especially on family relations. Rules of etiquette specifying what is regarded as appropriate conduct within the family, with relatives, friends and neighbors, and outsiders must be determined.

A very important, relatively little used source for relevant ethnographic data is the analysis of tape recorded free conversations. These can be played back to participants and their reports about the rights and wrongs of their own statements can be analyzed. Particularly useful in this respect is the analysis of minor family disputes or arguments. A good example of dispute analysis based on linguistic data can be found in Moerman (1966). Harvey Sacks (1966) is developing some new ways of deriving information about social relationships from natural conversation by examining the terms actors use in referring to each other, the modifiers they employ, and the semantic relationships among their statements in longer stretches of speech; however, analysis of this sort is probably beyond the scope of the present field project. (For recent work in this field see Garfinkel and Sacks, in press.)

3.4.2. Relation of Language Development to Other Areas of Socialization

> All Wogeo children who cannot as yet talk properly are thus to our way of thinking sadly spoiled. Never in any circumstances slapped or beaten no matter how naughty they may have been. They accept the granting of their most outrageous demands as a matter of course. Parents keep the household knives concealed in order to avoid having to refuse requests that these be handed over, but fragile ornaments like ear-rings are presented at once. Although such objects, never intended for rough treatment, are often broken within a few minutes. I never remember hearing a single expression of annoyance or irritation... (Hogbin, 1946, p.296).

The child's readiness to be subjected to certain areas of socalization may be judged in terms of his ability to use and understand his language. Behavioral expectations as well as the type of guidance and discipline given the child may be determined by his language development. Much of the communication that occurs between adult members of a society is accomplished through speech and speech surrogates. It is largely through the use of this channel that they seek to influence the behavior of others and that their own behavior is influenced. Adults, in attempting to transmit the norms of social living to children must at least implicitly recognize certain limitations in those who have not yet acquired the language. Thus, the child's behavior may not be negatively sanctioned in certain areas until the adults of his group feel that he understands their verbal injunctions against this behavior. We are interested here in the degree to which the child's acquisition of various levels of linguistic proficiency shape the attitudes and beliefs of adults with regard to his mental and physical abilities and thus their behavior towards him in other areas in enculturation.

We may, for example, observe that in one culture adults may be heard saying "No, No" or its equivalent to children still in the babbling stage. The belief here may be that, although the child does not understand as an older child might, he can understand such verbal injunctions by attending to cues such as tone of voice or intonation pattern and will thereby cease the undesirable behavior. Members of other cultures may look upon these adult attempts with amusement, feeling that it is essentially futile to issue verbal injunctions when the child is yet unable to use and thus to understand the language. They may postpone this "No, No" type of behavior until the child has progressed further along the road to acquiring his language. Still other cultures will hold the belief that not only is such behavior useless but also should be regarded with extreme disapproval since at best the child can only be frightened by these experiences.

Section 3.4.2. was written by Claudia Mitchell.

Whiting and Child (1953) have divided socialization into five spheres: the oral, which concerns nursing and weaning; the anal, or toilet training; dependence or training in independence and self-reliance; sex; and aggression. Stephens (1962) adds a sixth, which concerns training in obedience. One other important area to consider might be locomotion restriction. This often begins very early in order to prevent the child from accidents. The investigator should attempt to determine whether child training in any of these areas correlates with stages in the child's acquisition of language. (A valuable aid in the cross-cultural study of socialization is the field guide used in the Harvard studies of child rearing in six cultures [Whiting, Child, and Lambert, 1966].)

Data Collection and Methodology

The chronological age at which training in all these areas is begun should be noted. Such data may be very difficult to gather through observations alone. It is unlikely that the investigator will be fortunate enough to witness the beginnings of such training. Secondly, he may have some difficulty interpreting the meaning of certain adult behavior toward children. It will be necessary to question a number of native informants about these training practices. The investigator may, however, observe the impositions of sanctions for failure to conform in these areas. The investigator should note in detail how such matters are dealt with. He should also note when sanctions appear to be absent. It will probably be necessary to question informants about the time at which complete conformance is expected from the child. He cannot expect to be able to interpret the severity of the social pressures that are brought to bear upon the child.

These data should be compared with the data on child speech to determine what correlations exist between the child's linguistic ability and training in any of these areas.

The deliberate postponement of training in any of these areas in response to the child's stage of language development should be ascertained by questioning informants. The investigator can gather such information by posing hypothetical situations to the informant and asking him what his response would be under the proposed circumstances. For example, the investigator might ask a mother who has a child still in the babbling stage, "What would you do if Johnny wet his pants?" "What would you do if Johnny exhibited aggressive behavior toward you or a younger sibling?" "Would you remove a fragile dish from the reach of your child or would you tell him not to touch it?" etc.

3.4.3. Informal Education

There has been considerable controversy recently about the impact of practices in the social milieu upon language development. Under the influence of the revival of emphasis on the biological givens with which children acquire language (Chomsky, 1965, 1966, 1967; Lenneberg, 1967; McNeill, 1966a,b), some have argued that all the milieu provides is the language data which a child processes in order to choose among alternative linguistic structures. Others, concerned about apparent social variations in language mastery upon school entry, have emphasized the impact of modeling and reinforcement of verbal skills in the preschool years.

The controversy bears upon the interpretation of "language development." If one means by language development such qualitative features as control of specific morphological and syntactical rules, then there is no evidence of marked social variation at this point. If one means more quantitative factors, such as the size of a child's vocabulary, and the length of his average sentence, then there does appear to be social variation. Even on this point, however, the evidence is conflicting. Labov recently warned, à propos of his research in Harlem:

> In our research, we frequently encounter children who behave in a face-to-face encounter with adults as if they were 'non-verbal.' But when we utilize our knowledge of the social forces which control language behavior, and stimulate speech with more sophisticated techniques, the non-verbal child disappears. These children have an extremely rich verbal culture; they are proficient at a wide range of verbal skills, even though many of these skills are unacceptable within the school program. The problem, of course, is to teach a different set of verbal skills, used for different purposes.

The analysis of the social impact of the milieu needs, then, to take into account several kinds of impact. One kind, which may turn out to be minimal (except in terms of style alternatives) is the influence aimed at the formal structure of language, at phonology and grammar. Another kind is aimed at the potentially infinite, cumulative component of language, its vocabulary. The third impact, which the quotation from Labov indicates might be major, is on the uses to which language is put, and the social settings in which it is considered appropriate to speak fluently a particular kind of language.

3.4.3.0. Targets in this Project

The description of informal language training could rapidly become a large manual in itself. We suggest several possible approaches, in increasing complexity. Very little is known about what might be con-

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Section 3.4.3. was written by Susan M. Ervin-Tripp.

sidered universals in language socialization. What is the minimum amount of language a child can hear and still learn to speak normally? What is the earliest age at which all societies address speech to children? Do all caretakers expect comprehension by the time children are two? What do they do when the child fails to understand? Any investigator can at least have a check list of the presence of the practices listed in this section.

Second, some quantitative assessments obtained by systematic sampling could give information about the ranges which can be found, and can suggest patterned relations between beliefs and practices. Third, a more complex study can be devised, in which different training milieux can be compared with respect to the three classes of consequent variables mentioned earlier. Ultimately, of course, one must experiment in order to have secure evidence on antecedent-consequent relations. However, as we noted in the Introduction, there are natural experiments which make possible comparisons which would be unethical if done deliberately.

3.4.3.1. Sampling

There are three kinds of samples which can be used in studying practices by the children's caretakers. Time samples or daily routines are valuable when the aim is to find out how often adults stimulate children, how often children initiate speech, and so on. Some valuable information can be obtained fairly simply if one limits the data recorded. For instance, in the time interval did anyone speak to the child, speak in its presence, or neither? The methods for the various types of samples are described in the Whiting et al. Field guide (1966). Situation samples are appropriate when one wants conditional information. For example, if a child makes a grammatical error, what happens? Results can be stated in probabilistic or percentage terms. The problem in situation samples is the rarity of some situations. For this reason contrived situations may be more efficient. For example, one can study style shifting by introducing the appropriate topic, or changes in address by bringing the right people together. An older sibling can be asked to teach a new word to the baby. The time samples can be used then to estimate the frequency of spontaneous occurrence of the eliciting conditions.

Either time or situation samples can be of these types: structured game or activity (informant must interpret on the spot), focus on an individual, on dyad, on a group, on class of behavior, on an inanimate thing or place (Beatrice Whiting, pers. comm.).

3.4.3.2. Pre-Verbal Stage

This is the stage of cooing and babbling, when there is little or no meaningful speech.

Vocal Stimulation

Time and setting sampling to find out the social settings in which infants are taken will be obtained for purposes of Section 1.5.1 (The Child's Lifespace). At the time, it should be noted whether (1) speech occurs in the vicinity of the baby or (2) speech is addressed to the baby or (3) vocalizations that are not speech are addressed to the baby. Note that these data will also be useful for an analysis of baby talk (Section 1.5.3).

Situational sampling should be done for the circumstances in which the child is handled. There should be samples of feeding times, washing or diapering or cleaning off soil, changing clothing or coverings. The same categories as above would allow for a simple tally of whether or not the caretaker stimulates the child vocally at such times. Note that Mowrer (1958) has suggested that the co-occurrence of pleasant stimulation such as feeding with speech makes the mother's voice pleasant to the child, so that his own vocalizing, by generalization, also becomes pleasant. Again, a chance to study baby talk. Some tapes should be made, and for ease in the sampling one might simply make a check list to indicate alternative types of vocalizing such as non-speech vocalizing like clicks (in a non-click language!) or whistles, nonsense words, nonsense sentences, baby-talk sentences, ordinary talk.

Reinforcement of Vocalizing

There is evidence that by the age of three months, some definite response by others to a child's cooing can alter its frequency. For instance, clicking, tapping the child, smiling by an adult increases vocalization frequency in a child. Note that such reinforcement must be conditional on what the child did.

Whether and how adults respond to an infant's vocalizing may depend on the setting. For this reason, it would be desirable to have a systematically varied sample of settings.

Classification of the child's vocalization will be necessary, e.g. as crying, fussing, cooing, babbling or other. (See Lenneberg et al., 1965.) One might expect that there would be differences between settings in that adults might be less likely to respond vocally to cooing or babbling in settings where other speech is occurring, since this might be construed as disturbance.

Any response to a child's utterances or vocalizations should be noted. As a baseline, compare to a description of what the adult is doing two minutes afterwards. Responses to vocalizing might be to do something--e.g. feed or handle the baby, make some gesture towards the baby or visible to the baby, come to the baby, or make any of the kinds of noises mentioned above. Note that studies show that even tapping can be reinforcing, so note any behavioral changes the child could detect.

Conditional Reinforcement of Vocalizing. The kind of reinforcement mentioned above would tend to increase any vocalizing by the child, at least within the class rewarded such as crying or cooing. In addition, especially during babbling there may be more selective reinforcement.

What happens when a word sounds like an adult word? A native speaker can identify such situations.

There are two kinds of "words like adult words," those that seem in general as though they could be possible words or those that in fact are in the lexicon, vs. words that might be appropriate for the child to use in the situation. Adults are likely to be looking more for the latter kind, especially at the age when they believe first words begin, but they may also reinforce anything that sounds like something from their language. In keeping records note what the model word was that the native speaker identified.

A second kind of imitation is immediate repetition, and it may refer to any feature of the speech of the model, including intonation.

3.4.3.3. Early Speech Stage

After meaningful speech begins, and adults recognize that the child can understand, the possibility arises of different kinds of verbal stimulation, including deliberate teaching of new vocabulary.

Vocal Stimulation

Time and setting samples of utterances addressed to the sample child can be classified, if enough situational information is given, into different fuctions. For example, children might at a minimum be given commands.

Some items may be given in order to elicit speech. One can play back a tape to find the caretaker's interpretation of her own behavior toward the child. Some examples of items to elicit speech from young children are naming of people and objects (for imitation), asking known-answer questions, using routines (for imitation).

Adults also give descriptions, explanations, stories and songs, which they may believe the child comprehends, and which children may sometimes imitate.

There is, of course, no procedure for collecting children's spontaneous imitations of adult speech. Such imitations, however, will doubtlessly occur in the course of general taping of adult-child interaction for a variety of purposes.

Spontaneous imitations should be examined in the light of several questions. To begin with, it should be ascertained whether they follow the same principles of "telegraphic" repetition as observed in the case of elicited imitations (Section 1.4.2). Further, an attempt should be made to discover the situations which give rise to spontaneous imitations. Whom does a child imitate? What are the form and content of the utterances he imitates? What functions may imitations serve? What are the relations between age and the form and function of imitation of adult speech?

A classification of imitation situations, based on Brown's longitudinal study of American children, is presented in Table 13, below (from Slobin, 1964). One of the theoretically most interesting types of imitation in the classification is that of the child's imitation of parental expansion of his own speech (1.1.1 and 2.1 in Table 13).

Table 13. Classification of Imitation Situations (from Slobin, 1964)

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1. Child's responses to information provided by adult

    1.1. Repetitions of adult's reactions to child's speech

        1.1.1. Repetitions of expansions

            1.1.1.1. Expanded

            CHILD: Papa name Papa
            ADULT: Papa's name is Papa, uh-hum.
            CHILD: Papa name is Papa.

            1.1.1.2. Unexpanded

            CHILD: Just like cowboy.
            ADULT: Oh, just like the cowboy's.
            CHILD: Just like cowboy.

            1.1.1.3. Reduced

            CHILD: Play piano.
            ADULT: Playing the piano.
            CHILD: Piano.

        1.1.2. Repetitions of corrections

        ADULT: What's that?
        CHILD: A bear.
        ADULT: A bear. No, that's the cat.
        CHILD: Cat.

Table 13. (cont.)

1.1.3. Repetitions of augmentations

CHILD: I spilled it.
ADULT: You certainly did--on the floor.
CHILD: On the floor.

1.2. Repetition of new or difficult content

1.2.1. Confirmation of new information

1.2.1.1. Information requested by child

CHILD: What dat?
ADULT: A disk from a game.
CHILD: Disk game.
ADULT: From a game. Part of a game.
CHILD: Part game? Part game, Mommy?

1.2.1.2. Information not requested by child

ADULT: It's sharp.
CHILD: Huh, sharp.
ADULT: Like a knife.
CHILD: Knife.

1.2.2. Apparent search for clarification of adult's utterance

ADULT: It fits in the puzzle someplace.
CHILD: Puzzle? Puzzle someplace?
ADULT: Turn it around.
CHILD: Turn around?
ADULT: No, the other way.
CHILD: Other way?
ADULT: I guess you have to turn it around.
CHILD: Guess turn it round. Turn round.

1.3. Repetitions of descriptions of the current situation

ADULT: Mommy's gonna make a cookie.
CHILD: Make cookie.

1.4. Repetitions of praise

ADULT: That's a good boy.
CHILD: Good boy.

Table 13. (cont.)

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2. Child's responses to requests and demands from adult

2.1. Responses to expansion-questions

2.1.1. Expanded

CHILD: Pick 'mato.
ADULT: 'Picking tomatoes up?'
CHILD: Pick 'mato up.

2.1.2. Unexpanded

CHILD: Daddy desk.
ADULT: 'Daddy's desk?'
CHILD: Daddy desk.

2.1.3. Reduced

(no examples in Brown's corpora)

2.2. Responses to questions

ADULT: Did you find the penny?
CHILD: Find penny.

2.3. Repetitions of questions

ADULT: Where did it go?
CHILD: Where did it go?

2.4. Responses to imperatives

ADULT: Be careful.
CHILD: Be careful.

3. Sound play and word play

CHILD: Who dat, Mommy?
ADULT: That's the tatooed man.
CHILD: Tooman. Tatoo man. Find too tatoo man. Tatoo man. Who dat: Tatoo. Too man go, Mommy? Too man. Tatoo too man go? Who dat? Read dat. Tractor dere. Tatoo man.
ADULT: Tatooed man.
CHILD: Tatoo man right dere. Too tatoo man. Funny too man funny. Too tatoo man.
ADULT: Tatooed man.
CHILD: Who dat? Who dat? Tat ta tatoo man.

In addition to the kinds of methods listed above, there are specific responses which can be made by adults.

Expansions. Middle-class American parents tend to expand their children's utterances very frequently (Brown and Bellugi, 1964). If you listen to adults and children together, you will often hear the adult imitating what the child says--but, in so doing, the adult fills in the child's telegraphic speech and clarifies it; makes it into a full sentence. For example, a child might say, "Play Momma slipper," and the mother will reply, "Play with Momma's slipper," adding a preposition and an inflection. Or a child may say, "Play piano," and the mother will say something like, "playing the piano," adding an inflection and an article. Sometimes these expansions are given with a declarative intonation, as if the adult were simply confirming what the child has said (1.1.1). And sometimes they are given with a rising intonation; for example, the child may say, "Oh no raining," and the mother may ask, "Oh no, it's not raining?" These "expansion-questions" (2.1) appear to be a sort of communication check--the mother offers an expansion and seems to ask: "Is this what you had in mind?"

The speech of young children has a peculiar force in eliciting these sorts of expanded imitations from American middle-class adults. It remains to be discovered whether this phenomenon is universal. Brown and Bellugi report that: "Indeed we found it very difficult to withhold expansions. A reduced or incomplete English sentence seems to constrain the English-speaking adult to expand it into the nearest properly formed complete sentence" (1964, p. 144). In their data on two children it has been found that about 30% of the utterances of the children called forth expansions from their mothers. Interestingly enough, the mothers "imitated" their children about three times as frequently as they themselves were imitated, for only about 10% of the children's utterances were spontaneous imitations of adults (Slobin, 1967).

Accordingly, an important type of imitation to look for is a child's imitation of parental expansion of his speech. Brown's subjects imitated expansions fairly frequently--about 15% of the children's imitations in his transcripts are repetitions of expansions or responses to expansion-questions. About 50% of the time the child expanded his original utterance in imitating the expansion (1.1.1.1 and 2.1.1 in Table 13) (Slobin, 1967).

Responses to children's imitations can be very revealing. For example, one person may accept as an adequate imitation a response that is considered inadequate by another. These differences in behavior are very obvious in the language-instruction classroom.

Each time an imitation is recorded, the question must be raised as to whether any response of the caretaker indicated that the imitation was viewed as a success or not. It may be of course that imitations are not evaluated at all.

An elicited imitation situation might be especially enlightening in terms of standards used. What does the trainer emphasize in repeated modeling, if anything? Sometimes changes of rate or emphasis are used by dissatisfied teachers, showing that they viewed some segment of the utterance as inadequately imitated.

It would be valuable to collect some texts of speech to children to discuss with the parents or other speakers in the context of the attitude interview, to see if there is in fact any belief that such behavior has a training effect.

These data also will be valuable for stylistic contrast with functionally similar texts addressed to children at later ages, by the same speakers, as part of the baby talk study.

Note that for this age as for others we need some time and setting samples systematically established to allow assessment of the richness of the verbal environment. Such samples must distinguish overheard speech, speech addressed to the child for his passive reception, and speech addressed to him with the demand that he respond in some way.

Responses to the Child's Speech. On page 40 of the Whiting et al. Field guide (1966) there can be found a list of forms of reward and punishment, which include many which may be used for speech socialization.

One of the rewards for speech is the maintenance of interaction. At this age one might expect to find (1) differentiation by setting and circumstance, so that children might be taught to keep quiet, or to speak up (e.g. greet, thank) under specified conditions; (2) differentiation by style, e.g. don't whine, speak quietly; beginnings of speech etiquette (perhaps earlier this was confined to trying to limit crying); (3) rewards for learning correct name or structure, or correct imitation of sound.

3.4.3.4. Later Speech Stages

After the basic grammatical features of language are acquired, one can look for the following kinds of phenomena:

Corrections of Remaining Deviations.

These may be idiosyncratic features, or they may bear on the learning of style varieties, so that the child is taught to use a special form in school, before company and so on.

In the attitude and belief interview (Section 1.6), some questions were asked about what kinds of problems children still have after four or so. It may be difficult to locate actual occurrences of errors, in situation sampling.

Training in Specific Features of the Linguistic System.

For example, in American schools children are taught opposites, and certain taxonomic hierarchies, and features of an organized vocabulary. They may be given training in morphology as well.

Memorization.

Teaching of rhymes, songs, and stories with the demand for imitation.

Sociolinguistic Training.

Children may receive explicit instruction in routines and in selection from an appropriate repertoire according to situation, addressee, and so on. In multilingual communities, in particular, one should observe caretaker behavior when the "wrong" language is used.

3.4.3.5. Eliciting Devices

The preceding discussion was aimed at a check list or naturalistic sampling of behavior in normal settings. Since many conditional responses would not be observed, it may be an advantage to construct situations, in order to observe what caretakers do.

For example, how much do the caretakers stimulate speech in children by the various methods? One way to see would be to tell the caretaker you want to get as much speech from the baby as possible. Then see what the caretaker does.

What does the caretaker regard as "teaching"? Instruction to the caretaker that she should teach a specific list of new words (along with the referred objects) would elicit some samples of teaching. The same would work with teaching how to pronounce something new. In these instructions, one can get the caretaker interested in getting a good performance from the child, so as to be less conscious that she is being observed.

Ask adults to (1) teach a story, (2) teach a child to perform a task (3) give directions to the child. The first method was used by Vera John in studies of narration. Children were told stories and asked to repeat them. Measures of interest were in the child's behavior, but such a method could also be used to study the caretaker's behavior.

Hess and Shipman (1965) have used several methods of getting caretakers to give directions. (1) The mothers were shown a set of blocks varying in size, shape, color, and whether an X or O was painted on top. The mothers were taught to sort into groups by the X/O and tall/short categories. Then they were told to teach the child to sort the same way. (2) An "Etch-a-Sketch" is a device with a knob for controlling vertical movement of a line, and another knob for horizontal movement. The mother was to move one knob, the child the other, in copying designs given to the mother.

Hess and Shipman found great differences in the mother's behavior in these situations. Some scarcely verbalized. Some gave directions bit by bit, without getting the goal across to the child. Some talked a lot, and got little out of the child either verbally or in performance. The children's verbal comprehension at age six was related to the skill of the mother in getting speech from the children at age four.

Courtney Cazden (1965) experimentally studied aspects of adult response to child speech in search of types of response which would especially facilitate grammatical development. In comparing the rate of grammatical development of children receiving expansions of their speech with that of children whose speech was simply responded to, she found that just replying to children was as effective as expanding their speech. In the experimental condition, the adult systematically expanded every utterance of the child. Perhaps expansions were not as helpful to grammatical development as was expected because, in this situation of constant expansion, there must be some proportion of mismatches, or erroneous expansions based on the wrong interpretation of the child's intent. Other varieties of adult response to child speech are:

1) Replies. Cazden found that appropriate replies were effective in aiding the development of the child's grammar. Note that not replying to a question would in some cultures be quite difficult or unlikely.

2) Continuing theme. The caretaker (or other child) maintains the topic and continues the interaction by additional commentary: "See truck." "Is it a big truck? That's a moving van!"

3) Confirmation. "Yes, that's an apple." This may be simply a repetition of the child's utterance.

4) Changing the subject, but maintaining interaction. Such a procedure may teach what topics are appropriate for what situation and may demonstrate who controls the topic of conversation.

5) Reduction. As Arthur J. Compton has pointed out (pers. comm.): "At some point the child must also learn a rather complex set of deletion rules which tell him what parts of his newly acquired phrase structures are redundant expansions of foregoing utterances. It is quite possible, then, that the adult reverses his strategy and begins to supply the child with reductions rather than expansions." (Cf. discussion of tag questions in Appendix 1.3.4.)

6) Non-verbal reply. The adult may respond by providing the goods and services requested, thereby reinforcing the request.

7) Metalinguistic comment. "Don't say X." "X is a bad word." Such comments may also be implicit in corrections.

8) Correction. Any expansion could imply a correction. The investigator should indicate what was changed in the correction or expansion. Also, Slobin and Argoff have noted that a Russian mother in the U.S. consistently translated her child's English sentences into Russian before replying. This constitutes an implicit correction.

What are the bases for semantic correction? If a child sees a dog, and calls it a cat, he may in fact be using a semantic category "animal."

The adult may simply confirm the child's category, or he could ignore the child's comment, or he could correct the child, in one of two ways. He might say, "it's an animal" or "it's a dog." In most cases we have observed, the latter is done. That is, a label from the same contrast set is selected and the assumption is made that the name should be at the same level of abstraction as the erroneous name. If a child calls a dime "a penny," the adult usually doesn't say "it's a coin" or "it's money." Thus the child is taught to differentiate first. It is assumed he knows one name and some exemplars, and his overgeneralization is cut back by being given a new name for the new member of a new class. In this way he learns a set of contrasts at the same level of abstraction. (See Brown, 1958, for illuminating discussion of level of abstraction picked by adults in teaching children new words.)

Recent work on semantic anomalies (Robin Chapman, in progress) suggests that if a child produces an odd sentence like "I'm drinking carrots," adults might (1) assume the verb, rather than the concrete noun is wrong (then their correction will preserve the noun and change the verb) and (2) preserve the most concrete nouns.

Probably the most fruitful work on caretaker responses can be done by working over tapes with the caretaker, and categorizing each response to the child, in the field, with the caretaker's recent recollection of the factors involved.

3.4.4. Formal Education

Formal education in our own culture plays an important role in the socialization of the child. Much of the child's time after age five or six is spent in a formal classroom situation, and although the magnitude of the influence of formal education upon the child can only be guessed, it is most certainly great. Moreover, since most of the interaction that takes place in the classroom is verbal, the child's acquisition of language and of rules for speech behavior would also seem to be greatly influenced. The study of formal education of the child, therefore, is an important part of the study of the acquisition of language and language use.

Although formal academic education plays a preponderant role in our own culture, it seems to exist in one form or another in most present-day cultures. A complete study of formal education in any society would require more time than the investigator is likely to be able or willing to spend, but the probable importance of such education in the acquisition of language demands a certain minimum of observation of the educational process.

An important observation to be made is whether or not the language is studied as a subject itself, and, if it is, what kinds of things are taught about language. Is the emphasis, for example, upon the structure of the language itself, upon spelling, upon reading, upon correct pronunciation, upon the use of proper language in certain situations, upon the learning of folk myths, tales, or history, and so on? How these topics are taught is an equally important question to be answered. If a literary language and an everyday language both exist, it will be important to note which is taught in a formal educational setting and which is not.

The age and sex of children who receive formal education should be noted, as well as the type and content of the education received by each. The amount of time spent in school and whether it is a day or a boarding school may also be important variables.

Since the ethnographer will not have the time to spend observing classroom behavior in enough depth to obtain all the relevant information, it will probably be necessary to question informants. An important source of such information will be the school officials themselves. Since accounts from officials who probably have vested interests are likely to be highly idealized, however, it will be necessary to have some cross-checks. Students should be questioned; information obtained from them not only will serve as a check on official statements but also may provide clues as to the children's views about and interpretation of

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Section 3.4.4. was written by Keith Kernan.

formal education. Finally, some observations should be made of the classroom situation by the investigator himself (as noted in Section 1.5.1.).

Probably in all cultures formal education of children is much broader than academic education. Some formal education is likely to take place in all the areas in which the child is preparing to participate as an adult. Much of this education will take place sporadically as the need for it seems to arise and will have to be recorded as the investigator is fortunate enough to observe it or as he obtains data from informants.

Formal education in adult activities that takes place in a prescribed training situation will be easier to observe. Such education may include not only training in activities such as boat-building or agricultural techniques, but also in such linguistic skills as the recitation of shamanistic formulas, memorization of genealogies, folklore, songs, and the like. Again, methods of training should be observed. It may be important, for example, whether a child is given a lecture on boat-building or is permitted to watch master boat-builders at work and whether he is permitted to ask questions. Since some division of labor is present in all societies, all children will not receive instructions in the same areas of endeavor. Information as to who receives what kind of instruction from whom should be sought. It will also be important to note at what ages this education takes place and whether the children are segregated from the rest of the community while being trained.

Certain occupations may have specialized vocabularies, which should be recorded. Knowledge obtained by such training may be considered secret knowledge and, if so, an attempt should be made to determine how the secrecy is maintained, if it is at all, and what kinds of values are held regarding this knowledge by both the initiates and the community at large.

One important area in which some formal education is likely to take place in most cultures is that of rites of passage and these rites should be observed if possible.

All statements made to children regarding the proper use of language may be considered to be linguistic education. Such statements will have to be collected as they occur, but the ethnographer can question informants as to the ideas and values they hold regarding the linguistic education of children. Important questions in such investigation are: What does the adult believe children of various ages are capable of linguistically and what kinds of demands are made upon children according to this expected capability? (For more detail see Section 1.6.) In what areas is the child encouraged to demonstrate his linguistic abilities, and in what areas is he not so encouraged? In addition, what topics are children taught about and what topics are they encouraged to speak about; in the child's social network who instructs the child linguistically? The goal is to discover what kinds of linguistic skills the child is instructed in, how this is done, when, and by whom.

The following list of questions and suggested areas of possibly relevant topics is meant to serve as a guide to the investigation of formal education and is by no means considered to be complete or exhaustive. Additional topics and questions will undoubtedly occur to the investigator and should by no means be ignored simply because they do not occur here. Little is known of the effect of formal education on the acquisition of an individual's primary language and therefore the restriction of questions to be answered to any a priori hypothesis is not only difficult but may acutally lead to the overlooking of important and relevant data. The following brief list of questions should not be allowed to deter the investigator from following his intuition in the study of other facets of formal education which he feels may have a bearing on the acquisition of language.

I. If a formal system of academic education exists its structure should be described in general terms.
  A. Is education universal in the culture?
  B. If not, who receives education and who does not?
  C. How are these students selected and by whom?
  D. What is the rationale for non-universal education if it exists?
  E. Is education compulsory? How is this enforced?
  F. At what age does the child begin his education? Why this particular age?
  G. When does the child attend school?
    1. by each day
    2. per year
    3. in his school lifetime
  H. Is the school a boarding or a day school? (If a boarding school is used, how are the children housed?)
  I. Are there grades in the school?
  J. By what criteria are children advanced from one grade to another?
  K. What is the administrative structure of the school system?
    1. Is it a governmental, parochial, or private school?
    2. How are the administrators selected?
    3. Who are the teachers and how are they selected?
    4. What kind of education do the teachers have?
  L. What courses are taught? (Which are compulsory and which elective?)
  M. How is the educational system financed?

II. Values concerned with education
  A. Is an education, in general, believed to be necessary or advantageous?
  B. Is this true for everyone, or for some particular part of the society such as boys and not girls, or leader's sons and not the children of the poor?
  C. What are the specific advantages of having an education? (E.g. is education felt to lead to more prestige in the community, more earning power, better able to interact with outside world, etc.?)

D. Are there any disadvantages to having an education? (E.g. does it lead to dissatisfaction with native life, too much responsibility, envy on the part of others, leaving the community, etc.?)

E. Do sub-groups within the culture differ in the value they place on an education? (E.g. do educated parents believe an education is more important for their children than do uneducated parents? Do community leaders think education more important than the rest of the population does? Is there a traditional progressive split in the community with different values concerning education in general or types of education? etc.)

F. Are some types of education considered to be more prestigeful than others? (E.g. is an academic education more prestigeful than an education in boat building?)

III. Language Instruction

A. Is some sort of linguistic analysis of the language taught?
   1. Are students taught to analyze sentences by parsing them into functional components such as subject, verb, object?
   2. How is this done, by parsing and diagraming sentences, for example?
   3. Does the teacher do the analysis or do the students participate?
   4. If there is student participation, is it oral or written?
   5. Are students given practice constructing morphologically and syntactically well formed sentences?
   6. Are students encouraged to memorize such things as paradigms of verbs? Is this done by rote or some analytical basis which is made explicit by the instructor?

B. Is spelling taught in the school?

C. Is reading taught?
   1. What is the relation of the script to the sound structure of the language? To lexical representation?
   2. When does reading instruction begin?
   3. How long does it take the average child to learn to read? How much variation is there between children? How well do children of different ages read?
   4. Is reading taught by rote memorization of words or by some sort of phonic system?
   5. What is the size of the vocabulary introduced in the first year, etc.?
   6. How different is the pronunciation used in reading from pronunciation used in natural speech? How different is the grammar of the primers from the grammar of the children?
   7. What is the role of oral reading as against silent reading?
   8. Is reading taught only as a utilitarian skill, or is there emphasis on aesthetic values of reading (appreciation of literature, etc.)?

  9. What do children feel about learning to read as compared to other subjects in school?
  10. Does the child's phonological system change when he learns to read? Is there evidence for change in underlying lexical forms?

D. Are students encouraged or required to write original compositions, stories or poetry?

D. Is there any training in oral skills such as conversational techniques, story-telling, or speech making? If so, what form does this training take? (Does the teacher lecture on proper technique, do students make speeches, are there debates, discussions, arguments, etc.?)

IV. Use of language as a teaching methodology

A. Is the classroom situation usually that of teacher lecturing and students passively listening or do students sometimes recite?
  1. What is the percentage of time of teacher lecturing and that of students reciting?
  2. If students sometimes speak in the classroom, what is the nature of their participation? That is, is it done formally with the student raising his hand and standing to say what he has to say, or is there some kind of free discussion?
  3. What is the style of speech used in the classroom? (E.g. is it formal, polite, colloquial, etc.?)

B. Are there positive values placed on speaking ability in the classroom? If there are, what kind of speaking is most valued? (E.g. poetry, formal style, rhetoric, argument, etc.)

3.5. USAGE AND STYLES

3.5.0. Introduction

Language is never used in a social vacuum. Even private uses of language may involve topical and code restrictions which can be predicted from social variables. In this section we have selected a diverse set of usage categories for discussion. The following points should be borne in mind:

1) In every speech community, there are differences between groups of _speakers_. In complex societies in which there is minimal contact between some sub-groups during socialization, there may be different vernaculars acquired during the pre-adolescent period. Even when all factors in a speech situation are the same, these speakers will differ _in their everyday vernacular_. In some contact groups or mobile groups children may learn more than one vernacular, and this may be carried to the point of multilingualism.

A special case of speaker difference occurs when the society prescribes that some set of speakers must employ a different speech variety, e.g. women's speech. In such a case, which does not arise from communicative isolation, all members of the community must be able to understand such speech. It is possible that a man could teach a girl to use women's speech, just as nuns can teach a male role to orphanage boys.

Age-grading of speech may result in another type of speaker difference. In such cases the speech pattern is learned from slightly older children or peers, an example being the "basilect" noted by William Stewart in Washington, D.C. (in Shuy, 1964). In these cases the speaker's everyday vernacular changes with age along with other age-graded behavior.

2) A given individual may control several speech varieties if he occupies more than one _status_ in the society. For example, he may use one speech variety at home and another at work, even when addressing the same persons, e.g. a brother who is a co-worker. These differences have been labeled variously; if they are limited to a few lexical items they are called "occupational jargon"; if they permeate the morphemic stock without special semantic selectiveness they are called "diglossia" or "multilingualism"; if they influence the lexicon partially, and the phonology and grammar slightly they may be called "style variation." An example of style variation is baby talk, used in addressing infants and sometimes pets and lovers.

3) In a differentiated society not all individuals control or understand fully all speech varieties. Occupational variation may

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Section 3.5.0 was written by Susan M. Ervin-Tripp.

isolate some groups of persons who have a high frequency of communication and special semantic concerns. Whether the speech variation in such cases is acquired through formal education or informal assimilation depends on how the occupational specialization is transmitted, and how it is valued in the larger society.

In addition to the semantic needs of specialized occupations, there may be values attached to ritual preservation of old forms, and only a limited segment of the population may learn their meaning. Or secrecy in communication may be valued, as in deviant behavior, or the mere marking of membership, as in the case of children's secret languages.

4) Language is used by all speakers for a variety of functions. These are not always communicative in the conventional sense: children may engage in pre-sleep monologues or may play with nonsense sound sequences. As children grow older their pleasure in the manipulation of various features of language may lead to complex forms of verbal play and verbal art. Some of these forms have entered into the common culture of children and of adults and are transmitted socially either by elders or peers. Another speech function discussed below is the use of speech for acts which cannot be performed except by speech, i.e. "speech acts" such as promising.

5) In all languages there are rules about when to speak and when not to speak, and in some situations there are rules about particular forms to be used or avoided. These rules may be called speech etiquette. Forms required, for instance, may include greetings, thanks, apologies, address rules. Forms avoided may be some types of address and reference in given situations, or taboo words, whose usage is limited according to speaker or situation.

6) As with other skills, proficiency in language use is not the same for all members of any society, though it is often assumed that language competence is the same for everyone. Clearly there are differences in both aptitude and experience which affect many facets of language use and comprehension as well. These differences may be increased by special training or specialized rewards for skill in certain functions of language such as verbal art, word play, or persuasion.

3.5.1. The Acquisition of Usage Patterns

The child's effective participation in speech events presupposes the mastery of a much wider proportion of the communicative resources of his speech community than such core features of his language as its phonological and grammatical systems. He must also learn the rules that prescribe the way his language is to be used. The usage patterns of a language are governed by social norms. The "correctness" of any utterance may be judged in terms of its grammaticality in a pure linguistic sense or in terms of its appropriateness as measured by social norms. Thus, "Give me the book, John" may be grammatical in the first sense but socially inappropriate when the speaker is Tommy, aged seven, and the addressee is his father. In order to behave as a native speaker in any speech community, it is necessary to adhere to both these types of conventions.

When it is possible to say the same thing in more than one way, we usually find that the selection of one alternative over another carries social meaning. The use of one variant may convey information about the social identities of the interlocutors and the social definition of the situation in which the speech event occurs. The linguistic markers of social variants differ in the manner in which they are encoded. In linguistically homogeneous speech communities social meaning may be conveyed by subtle shifts in phonology and grammar or by the choice of one lexical alternative over another. Similarly, alternations between unrelated languages in multilingual societies may occur in response to particular kinds of social norms (Gumperz, 1965b).

Multilingual speakers may lack voluntary control over accent, but they can make some voluntary code selections. Attitudes toward maintenance or loss of a language involve a complex of beliefs about group identity, which for some groups is centered about language (Fishman, 1966; Hymes, 1961, 1962). In a given situation, language, dialect, or style selection can be predicted from a variety of features, including participants, topic, and situation (Gumperz, 1964a,b; Herman, 1961; Rubin, 1962). In addition, many unconscious types of code-shifting occur (Diebold, 1961, 1963; Gumperz, 1964b) even by speakers considered "monolingual." Whether the borrowings are phonologically integrated or not may be significant. (For members of a bilingual community, the two languages tend to be merged at certain levels. In extreme cases, a few lexical selections or even grammatical morphemes may survive as the only markers of group membership or role definition [Gumperz, 1964a].)

Patterned speech behavior activated by status criteria has been mentioned frequently in the literature. Anthropologists, in particular,

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Section 3.5.1 was written by Claudia Mitchell and augmented with notes from John J. Gumperz.

have made reference to this aspect of speech behavior in discussing the patterned behavior that occurs between kinsmen in many societies. Status is used here to refer to any social identity an individual assumes* with which is associated a fairly well-defined set of behavioral expectations. The specific points of reference a society selects for the assignment of status vary from culture to culture; such criteria as sex, age, and kin relationship, however, are extremely widespread. In more heterogeneous societies class and occupational affiliations are frequently used as points of reference for the ascription of status. It is often possible to specify, at least normatively, the type of behavior that can occur between one member of a group and another on the basis of the culturally defined behavioral expectations that accompany the status positions of both, as mediated by the circumstances under which the interaction occurs. Behavioral expectations include various kinds of affective states that are associated with status relationships, such as intimacy, solidarity, enmity, affection, and the like.

Within any given group interaction between one individual and a socially relevant alter may be governed by loosely defined rules or by extremely rigid conventions. Geertz (1961) notes that in Javanese society no interpersonal contact is possible without a clear definition of status. The behavioral expectations governing interaction between members of a group often determine the content and nature of the verbal exchange that may take place. Here, again, the rules may be lax, and tolerance for deviation may be considerable, or the rules may be extremely rigid in the specificity, consistency, and constancy they require. These rules of usage run the gamut from the familiar prescriptions on proper forms of address to conventions that include conversational taboos on particular topics between certain interlocutors.

Appropriate usage patterns for the members of a speech community tend to be status specific. In any community there may be rules of usage that are associated with the generalized status of adult, rules that are expected to be understood and observed by all adult speakers. Rules of usage may be differentiated according to other status criteria such as age, sex, rank, and the like. Thus, Javanese interlocutors must adjust their style of speech to the appropriate level of politeness according to their relative statuses. Violations of rules of usage may have a variety of interpretations. For example, in a stable society with strict rules governing the use of respect forms the use of a form of deference toward a person lower in status may be interpreted as patronizing. In more heterogeneous societies improper usage may mark one as a member of a less cultivated group.

It is important to point out here that any utterance in any society is always judged both in terms of grammaticality and in terms of its social appropriateness. What is peculiar about the Javanese situation pointed out above is that (1) rules are status determined and rigid, and (2) status differences are symbolized at the morphological level. However, in other societies rules may be less rigid and may be symbolized by lexical or stylistic variation; nevertheless, they do exist and must be determined.

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*It is important to note that an individual may enact different identities at different times.

Probably one of the best ways of learning about rules of usage is by observing what happens when they are violated. Violation of rules of grammaticality lead to loss of intelligibility but do not necessarily create ill will. Violations of social rules frequently do generate ill will. This is implied in comments like, "Who does he think he is, talking to me like that"; "He's puttin on airs"; "I'll wash your mouth out with soap."

The child's complete enculturation into his speech community necessitates his mastery of the social norms that signal the appropriate use of variants, as well as his proficiency in adapting verbal behavior to relevant social cues. A description of his linguistic socialization must therefore include his acquisition of sociolinguistic skills. (For example, when does role playing begin? Do children talk differently to their peers, to younger children, and to their parents? When do children show different attitudes towards speakers of other dialects or languages? Studies by Lambert and collaborators (Anisfeld & Lambert, 1964; Lambert, 1967; Lambert et al., 1966) show that ratings of accented speech are sensitive indicators of intergroup attitudes --even in children. Lambert's technique of gathering attitudes towards tape-recorded speakers using different accents, dialects, or languages would be a useful device to employ in the field. In applying this technique, the listener does not know that he has heard the same individual speaking in two different ways, and rates each "guise" as a separate person. [See Section 2.1.7.])

A developmental study of usage patterns may be approached from at least two viewpoints. Given a particular set of adult norms, child language may be described in terms of a progression toward the mastery of the adult system of usage. Child speech, however, may reflect age-graded usage systems which are not clearly relatable to adult norms in terms of stages of acquisition. Child speech at a given time, then, may reflect either, or more likely both of the above.

Data Collection and Methodology

For a number of reasons we suggest that the sociolinguistic aspect of language development be left until the second half of the field stay. First of all, it is hoped that by this time the investigator will be fluent enough in the target language so that the problem of detecting variation will have been reduced. Should the language problem still remain a major barrier, the investigator will have had time to train a native assistant to help him. Secondly, the investigator will have been present long enough to possess some kind of social identity in the community. Even if the investigator remains an "outsider" throughout his field stay the members of the community will have evolved some basis for interacting with him. This will help to provide a frame of reference for interpreting the interaction which takes place between the investigator and members of the community. Thirdly, the investigator will hopefully have learned enough about the speech habits of the group to pick some problem which is feasible to research developmentally. It should be emphasized that the alert investigator will probably have no problem in collecting interesting sociolinguistic facts about the people he studies. If, however, he wishes to return from the field with something other than a large and interesting collection of disconnected facts, his research at some point must become problem-oriented.

The nature of the field situation itself will be permissive or restrictive in terms of researching particular problems. Such factors as the heterogenity or homogeneity of the community, its urbal or rural location, its size, the accessibility or inaccessibility of certain segments of the population, social stratification, etc., will play a major role in dictating the type of research which it will be possible to undertake.

While detailed linguistic analysis can be left until later, the investigator can collect certain kinds of valuable ethnographic information fairly easily. For example: How do natives tell that someone is from a certain locality, belongs to a certain class, etc.? What stereotyped pronunciations, or other types of usage, are recognized? How many dialects are there and how are they recognized? The field worker should also ask to be taught proper speech etiquette for interacting with various kinds of people. Also, most natives spend a great deal of time arguing about etiquette, and disputes about etiquette can be profitably analyzed. Informants can also be asked to act out other roles for the investigator.

Components of Speech Events. Since we are interested in usage patterns which carry social significance in some way, we wish to provide a framework for the analysis of speech events. A useful way of describing speech events is to specify: (1) a sender, (2) a receiver, (3) a message form, (4) a channel, (5) a code, (6) a topic, and (7) a setting (Hymes, 1962; for a more detailed discussion of communication events see Hymes, 1964, pp. 13-25). This initial "etic" framework may be used to describe speech events formally in terms of these components. We are concerned here with the manner in which the social identities of sender and receiver and the social definitions of settings affect message form, channel, code, and topic, and also with the manner in which these factors affect each other. The social appropriateness of any utterance, then, may be measured in terms of the effective manipulation of message form, channel, code, and topic according to social conventions and the adaptation of these factors to the social norms that constrain their usage in relation to the interlocutors and the setting.

We underscore *social* because the interpretation of usage patterns must be set within the frame of reference of native categories. The investigator, in describing patterns of usage, must in some way be able to relate these patterns to the social meanings they carry. The major question to be determined is: What distinct speech events are recognized by the natives? For example, are there linguistic differences between table talk and ordinary conversation, a political address, a sermon, and so on? The components of speech events listed above are important in describing the distinctions between locally recognized speech events.

If, for example, an investigator discovers marked differences in the speech of ten individuals with whom he has come in contact, he may go about discovering the social meaning of these differences in the following way. The variations could possibly be tied to a number of variables, such as the age of the informants, their sex, occupation, social rank, their history of residence, the setting of the encounter, whether or not the individual was bilingual or monolingual, etc. For this reason it is necessary for the investigator to collect certain background information about each informant and describe in as detailed a fashion as possible the settings and situations under which his data were collected. This plethora of detail may become unnecessary when the investigator discovers the socially relevant dimensions which co-vary with usage patterns.

Some Suggestions on How to Begin. Prior to entering the field the investigator should consult the literature to determine if any information is available on this topic for his area. This may also be an important criterion in the selection of future field sites, since previous sociolinguistic studies and ethnographies can provide a framework for a more comprehensive attack on the learning problem.

The investigator must involve himself as a participant observer in a variety of situations and get to know a variety of people in order to avail himself of ready-made sources of data on speech variation. His best means of verifying any hypotheses he may entertain will be through observational data.

Adult Speech. Before a description of the child's language acquisition can be undertaken, the conventions of the adult members of the group must be described. A complete sociolinguistic description of these usage patterns would necessitate an intensive study of verbal interaction between members of the adult community. It would require, in addition, a variety of subtle manipulations on the part of the investigator to tap areas that are not easily verbalizable by native speakers as well as areas about which there is a great deal of cultural sensitivity. Such a study is beyond the scope of an investigator undertaking the type of description we suggest in this manual. It is important, however, for the investigator to research any given topic chosen among the adult members of the community. It will be informative whether or not he finds a clearly progressive learning process or discontinuities which reflect discrete age-graded systems of usage or reveal a process of change. Indeed such conclusions cannot be drawn in the absence of such data.

If there is published literature on the group to be studied the investigator may be fortunate enough to pick a problem and work out a preliminary research design before going to the field. For most researchers this will not be the case. A few months of careful field notes will be of great help in orienting this aspect of the study to particular problems and may quite likely reveal a number of avenues of approach. Here is an example of what we mean by permitting your data to lead you to a problem:

> A field researcher after two months of field work noted the following: Impressions gathered from casual conversations seem to indicate a marked difference in the speech of young men from 15-20 and those from 25-30. These differences stood out immediately: The manner in which conversations were initiated, tolerance for interruption of individual speakers, the popularity of current clichés, slang and hip vocabulary.

The preceding types of observations, gathered more or less by chance, might lead to an interesting area of investigation if systematically probed.

The interview situation provides an opportunity to try a number of ways to gather data on sociolinguistic variation. If the investigator has learned something about the metalanguage for talking about speech, questioning native informants about usage patterns might prove quite revealing. This kind of direct method of interviewing, however, may present a number of problems. First the investigator may hit upon areas about which there is a great deal of cultural sensitivity, and then the informant may be prone to give inaccurate information. For example, the informant may deny that he makes certain stylistic shifts in response to the rank of his addressee, if he is intent upon presenting his group as essentially egalitarian. Second, stylistic switching in response to different interlocutors and different social settings is often below the level of awareness. In some areas direct questioning may yield information, but in other areas a variety of procedures may be necessary to elicit relevant information. For example, an individual may respond readily that he calls his family doctor "Dr. Smith" and his parish priest "Father O'Connor." However, he may not be consciously aware that he uses very careful speech when talking to them. He is even less likely to be able to talk about the linguistic markers of such styles. The facility with which any individual will be able to verbalize the form differences between "styles" will probably reflect the manner in which the linguistic markers of such styles are encoded.

The investigator should check the accuracy of data gathered in interviews by questioning other individuals as well as by his own observations. It is important to compare informants' attitudes with their performance in natural conversation. Expressed attitudes give a clue as to what to look for in natural conversations. For example, Gumperz asked a number of Puerto Ricans whether their wives spoke English. The answer was that they did not. Recorded natural conversations, however, frequently showed them speaking to their children and to strangers in English. They used Spanish with their husbands, but often used English with others.

Interviews on specific topics may prove valuable. One useful point of departure for gathering data on sociolinguistic variation might be forms of address (Befu & Norbeck, 1958; Brown, 1965; Brown & Ford, 1961; Brown & Gilman, 1960; Fischer, 1964; Foster, 1964; Friedrich, 1966; Howell, 1967; Slobin, 1963). This is a natural subject of interest for one attempting to familiarize himself with a new culture from the point of view of the native informant. An interview might be constructed along the following lines:

Question: Tell me the names of some people you know. They may be friends, relatives, and so on.

Response: John J., Mary J., Tom J., Sue J., Fred S., Mary T., Sam L., Paul P.

Question: What do you call John J.? (How do you address him or her?)

Response: Father, Mother, Tom, Sue, Dr. S., Mrs. T., Sam, Mr. P.

Question: Who is John J.? (What is his relationship to you?)

Response: He is my step-father.

Question: Do you always call John J. Father?

Response: Well, sometimes I call him Dad. Actually I only call him Father when there are people around whom I do not know very well.

The investigator will probably have to ask a variety of questions before he is able to determine the relevant social dimensions underlying the use of address forms. Other questions might be: "Is Paul P. older or younger than you? How well do you know him? How often do you see him?" If, for example, the investigator discovers that both Sam and Mr. P. are neighbors of the informant, he should seek to discover why the one is addressed with a title and the other with his first name. It may be that Sam is younger than the informant and Mr. P. is older, or that Sam is a very close friend of the informant and Mr. P. more distant. Mr. P. might also occupy a status position that is ranked higher than the position of the informant.

Labov (1964) has had a great deal of success in eliciting stylistic switching in formal interview situations. His interview schedules were designed to elicit four contextual styles from his informants: (1) casual speech, (2) careful speech, (3) reading style, and (4) word lists. He states: "In our interviews we assumed that informants would normally use a style of speech that they, consciously or unconsciously considered appropriate for the interview situation" (p. 80). He found that the constraints favoring careful speech could be overcome by manipulating the topic of conversation. "The informant was asked, at a particular point in the interview sequence, if he had ever been in a situation where he was in serious danger of being killed. If the informant had such an experience to retell, he usually became involved in the emotional tension of the situation as he recalled it, and he no longer concentrated on the task of maintaining careful speech patterns" (p. 81). The last two styles were elicited by having the informant read a passage and a series of word lists. Labov found that certain phonological variables showed a regular pattern of shifting in these four contextual styles.

We have had some measure of success using this method, but have found that pre-formulated questions do not lead to consistent results. Rather than asking the same questions of all informants, we have found that casual speech is elicited more readily by maintaining flexibility with individual informants and exerting as little control as possible over topics of conservation. Having an informant read some passage or a series of word lists, however, consistently elicits some stylistic shifting.

Once the investigator feels that he has isolated some interesting form of speech variation, he should use his tape-recorded data as material for further interviews. He may present samples of speech to a number of native informants and ask them to specify the conditions under which the samples may have been uttered. Informants should be questioned about the speakers or interlocutors and should be asked to specify the type of cues they use in playing this kind of a guessing game.

A useful technique is that used by Blom and Gumperz and by Labov. The investigator brings together a group of people who know each other and whose mutual relationship is known to him. He then engages them in natural conversation on topics varying from serious discussion to informal banter, observing the degree of variation thus generated. (In all such work the diversity of elicitation contexts should be maximized. This can be done by changing settings, by manipulating degree of emotional involvement--laughter, heated discussion, detached description-- and so forth.)

Child Speech. Young children will probably invariably make mistakes in this area, and adults' corrections will also provide a useful source of data. The investigator should take advantage of any opportunity to observe young children in role play. Children often show a keen sense of social perception and even when they err in their usage they may provide clues to important areas of investigation. The investigator might also make deliberate errors in his own usage when interacting with children. They may be more likely to point out his errors and thus verify his hypotheses than adults. At any rate, he can note the response of children of different ages to inappropriate usage.

The order of emergence of sociolinguistic skills within the child's repertoire should be described in relation to the variants that have been isolated for the relevant reference group. The child's social perception of the rules governing usage may precede his actual ability to use the correct forms. He may thus use style switching according to the relevant social cues prior to his mastery of all the formal attributes of these styles. The degree to which variants are taught as formal systems in an explicit manner should be noted. Adult attitudes toward the child's ability must be noted, since these may determine the type of explicit instruction, corrections, and positive or negative sanctions given.

Adult definitions of the child's status and the possible statuses he may occupy in terms of age, sex, and other ascribed criteria should be noted. These factors may define his status as a participant in interactions. The child may, for example, master (or at least be aware of) usage patterns before it is socially acceptable for him to put them into use. He may thus be observed to employ distinctions in his role playing with other children that he will not use in speaking to adults. His status as a child may be the overriding factor that governs his speech behavior. His culturally defined status may also determine the opportunities his culture will provide to expose him to interactions where various types of usage may be observed. The system of sanctions that come into effect to produce conformance to adult conventions should be described. It is important to note at what stage in his development social sanctions emerge to control his verbal behavior. The types of misuse tolerated at some stages but negatively sanctioned at others should be noted.

3.5.2. Special Languages, Verbal Art, Speech Play

A part of the total language resources available in any particular speech community comprises speech skills or, perhaps, special codes that under a variety of conditions are used or understood by only some subset of the members of that community. The appropriate use of these special skills is characteristically contingent upon certain cultural expectations as to time and place and topic, as well as on the social attributes of the interlocutors. Verbal art and play, argot and slang, sacred and ceremonial speech styles are aspects of verbal skills that the native speaker acquires in addition to the standard dialect of everyday affairs. Although it may be initially difficult for the investigator to distinguish among all the available language resources in any speech community, informants are often able to speak freely of such distinctions and, indeed, may have words or phrases to identify these different speech skills. In this way the student may study the distribution of their use and of the use of the standard dialect without having the content of the forms well defined. "The informant knows what he is talking about if we as investigators do not" (Goodenough, 1965, p. 6). Thus, for example, older Zuni have a phrase covering "slang, punning, telling tall stories and other frivolous uses of language" (Newman, 1964, p. 399).

Some such speech forms have been called noncasual speech, and Voegelin has suggested as a cross-cultural generalization that "persons-in-the-culture... have either less agreement among fewer criteria, or less awareness (or both) in respect to appropriateness criteria for judging casual utterances than they have for judging non-casual utterances" (1960, pp. 61-62). We suggest that casual utterances constitute primarily the language of daily affairs, the greeting or parting formulas, conversation, questions and answers, monolog narratives of past, present, or future events, the standard routines of the speech community that the linguist utilizes and describes in constructing his grammar.

But there are also varieties of casual utterances (which may be elaborate enough to be special codes), and we can differentiate between them, on the one hand, and noncasual utterances, on the other, by borrowing another useful (if tentative) cross-cultural generalization of Voegelin's: "neither formal training nor specialized interest contributes--in any excluding or including sense--to the proficiency of different varieties of casual utterances" (1960, p. 62).

Voegelin cites as evidence for this generalization the following instructive cases from Hopi culture: (1) "All little Hopi speak a baby language variety of casual utterances, and no one says that one child is more proficient than another." (2) The adults who surround children use shorter or suppletive morpheme forms for kin or other terms, and this is the only model that children have until they are old enough to

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Section 3.5.2 was written by Jan Brukman.

follow the conversations adults hold among themselves. (3) Children's idiolect includes the use of initial spirant /v/; this is later abandoned (except when speaking to the lower adjacent generation) for the adult idiolect, which restricts this form to word medial, the stop /p/ appearing initially in casual utterances. (4) "All little Hopi girls follow their mothers' casual utterances for 'thanks,' 'beauty,' and other sex-differentiated terms, and Hopi boys imitate the older males' usage. No unusual interest attaches to this; it is learned by imitation without deliberate instruction as a matter that is sex-determined, like dressing as a boy or girl, for which there is virtually no choice or variation" (1960, p. 62).

There is thus a class of vernacular styles distinct from noncasual speech forms. These latter forms are generally associated with religious, aesthetic, or economic specialists, are never as appropriate in as many social contexts and for as many different actors, and particularly "training, or else unusual ability or special interest--in the sense of autodidactic interest--is prerequisite to proficiency in them; but conversely, it is not prerequisite to proficiency in casual utterances" (Voegelin, 1960, p. 64).

Special Languages

It is characteristic in many nonliterate cultures for specialists in culturally valued activities (e.g., shamans and/or religious specialists) to have distinct speech styles or codes which they and other members of their culture say are their own. Since these languages are not normally heard every day in the course of ordinary activities, opportunities for the child to imitate them will be limited, and we therefore expect that either a conscious effort will be made to teach them, or that certain structural characteristics of the society will expose certain children differentially to their use.

Some of the styles that have been reported in the ethnographic literature include: the language of the shaman and oracle (Bloomfield, 1927); the language of men's houses and warfare (Opler and Hoijer, 1940); the ceremonial languages of initiation and other rites of passage (Carrington, 1947).

Because of the noncasual nature of these speech forms, their syntactic and semantic aspects may be more easily discovered and stated than the corresponding aspects of casual speech may be. The most readily apparent divergences from the standard dialect occur in the lexicon, where coined terms, for example, are reported to be rare, but certain forms have become marked through usage in particular contexts as being out of the domain of neutral, every day language (Newman, 1955). In the context of highly stratified societies, where there may be parallel literate and nonliterate traditions (as in India), sacred forms of noncasual speech may carry distinctions from the vernacular of the local speech community even at the level of phonology--as in the Great, or Sanskritic, tradition.

We know very little about the acquisition of these languages or styles. However, we have some documentation of the ways in which musical abilities are acquired in some cultures, and since there are often strict parallels between verbal and other kinds of art (not only analytically but also from the point of view of the people in the culture), and since verbal art is a form of special language in the terms of the present discussion, the following evidence for music is given here.

Merriam (1965) cites ethnographic reports from many parts of the world which indicate that the most powerful direct learning of musical forms is through imitation of adults. Children are encouraged in this learning and especially in the context of socially appropriate occasions. Unfortunately we have little information about the ways in which such potential specialists are recruited (except in the obvious examples where specialists' roles are ascribed, as in India), and thus empirical data is needed on the process of role recruitment with respect to language in particular. The language component is often secondary to other considerations for recruitment, of course.

Nonetheless, the distinction must be made between the casual, nonspecialized musical performer (in this example), and the noncasual specialist who must have training in addition to being able to imitate what he hears. Thus in the Marquesas when a father wanted to have his son or daughter taught the sacred chants, a teacher, a "master of chants," was employed for the purpose. Instruction was in the common dwelling house, and the boy or girl was under strict tapu. It is further reported that all unrelated activity was strictly forbidden, with food being brought into the house so that the students would not have to leave their ritually dangerous surroundings. Among the Apache, the student listened to healing chants for four days without sleep under the tutelage of a practicing specialist. When these songs returned to the student in his sleep, perhaps years later, he was himself ready to be a practitioner.

Teaching techniques vary, are generally quite culture specific, and require a great deal of detailed observation. Merriam nevertheless lists the following agents as functionally comparable transmitters of musical knowledge: the family, established musicians, the ceremonial practitioner, the father, mothers, other children. Note that for only two of these agents is the primary role that of specialist in the strict sense. Additionally, there is formal schooling, with perhaps more explicit rewards and punishments for right and wrong performances.

Where special forms of language are highly valued (as among the Subanun of the Philippines in their drinking parties or among many West African peoples in the exchange of proverbs as important social occasions), whether for economic, aesthetic, or religious reasons, means of enculturation similar to that of music may be found for language; verbal art, where instrumental music is not highly developed, is often the precise analog of music in many cultures. In other cultures, it is clear that verbal art occurs only in association with music, and musical performances always offer opportunities for displays of verbal ability.

We would suggest that there are two broad generalizations which apply particularly to the special language aspects of verbal behavior: (1) Special training is required, and will always be more formal than the socialization of the child into the dialect of his community, with his "teachers" consequently holding a critical attitude toward the student, and the norms for proficiency being more clearly statable. (2) Because of the social and cultural restrictions on the use of these kinds of styles, we expect children to begin to acquire than at later stages in the total socialization process.

Speech Play

One variety of casual utterance in the sense used here, and one that seems to be especially characteristic of children in any speech community, is that of speech play. The forms such play will take are at least as varied as those of noncasual speech and the contexts of their use may be as restricted as those of special languages, but formal training and the idea of proficiency may be absent in the adult community. The implication is that socialization in the forms of speech play will not take place between adult and child but between child and child. We expect, therefore, that these styles, as in noncasual, specialist languages, will be acquired later in the social maturation of children than will the vernacular of the community.

A convenient initial distinction can be made about games played with words--that between word games about other kinds of cultural activity and word games as such. The former kind may be roughly characterized as role-playing games. Here, the investigator must be sufficiently aware of adult speech habits to be able to recognize imitative behavior on the part of children. Since one function of language is to project the various social identities any particular individual may have, children may be expected in almost every culture to begin to model their linguistic habits after the private and public social identities of persons with whom they come into contact.

This imitative or modeling activity frequently occurs in the stylized context of play in our own culture. For example, domestic scenes with toy dolls and mother's high-heel shoes, doctor and nurse, soldiers, cowboys--all these styles reflect both real and idealized norms for adults roles and are portrayed with varying degrees of similitude by the child actors. Children in every culture can and do improvise the props necessary for such activity, and the investigator may be certain that where a group of children gather with such props role playing and hence verbal behavior miming adult behavior will be present.

In these settings the investigator can determine what, if any, are the children's conceptions of, for example, the rules of stress, intonation, and pitch used by adults in the roles taken by children. Additionally, children may take the roles of baby-talking parents and offer their conceptions of baby-talk itself. Attention should be given the code used in two areas: lexicon and sentence length. Role-playing may show children to be more competent in the forms of speech used by adults than their normal speech would show in nonrole-playing, nongame settings. Longer and syntactically more complex sentences and lexical items common to adult domains may be employed by children to achieve a closer approximation to adult speech habits.

There are technical difficulties in recording role-playing groups in natural settings. These games may be semiprivate affairs, since they are, after all, a form of experiment, as well as a test of a child's ability to play the adult game correctly. Where adults encourage role-playing (as in some societies where functionally valuable roles are taught to children at an early age), role-playing games may not be sensitive to the presence of adults, but elsewhere children may suspect strange adults whose motivations are unclear. Because many role-playing games are highly mobile--like cowboys and Indians--the fieldworker may have to be satisfied with either attending to only one actor in a particular scene, or observing games that are localized in their contexts.

The second type of word game, games about words as such, requires much less understanding of the various social settings characteristic of the adult world in a particular culture, but a correspondingly greater sophistication in the dialect in the community being investigated.

Conklin (1959) and Haas (1957) have described two differing kinds of word games. One of these games, that described by Conklin, is similar to the role-playing game, except that the conception of the personnel involved and the activity engaged in are reversed. That is, in the role-playing situation, the setting is conceived of as game by the personnel who then enact their assumed, pseudo-roles. In the verbal play described by Conklin, functioning roles (i.e. "courting pre-adults") are assumed by the actors and acted out in the form of a game--secret language.

Secret language (or languages) seems to be present in many, if not all, cultures. It serves to maintain and enhance the boundaries of social groups within a culture, and to label individuals' intent in particular settings. It seems that taxonomically the range of this kind of language is particularly broad over the world, legitimately encompassing any form of non-standard argot, from such types as pig-Latin to royal-common and male-female languages.

The fieldworker must first discover how many of such forms are in use in a particular community, and their distributions over settings, before beginning to investigate the child's acquisition of them. These varieties of speech are by definition often difficult to discover, although some are only sociologically secret, being understood by every adult, and used openly but only by a clearly defined group--as in the men's and women's speech discussed by Haas (1944). The investigator may be able to inquire directly into the structure of these forms once he has discovered them, and for this purpose informants may be queried in the same manner linguistic informants are. Here care must be taken to distinguish the languages of the culture of children (Opie and Opie, 1959) from the languages employed exclusively by adults. In the former case it is expected that children will socialize their near-age mates into these linguistic forms, while in the latter, instruction, either formal or informal, may be required from adults. Thus what may begin as play--as in role-playing--for the child may evolve into the learning of an important functional style, the control of which is obligatory in adult life. At this point adult attitudes and beliefs about language are crucial, because the native speakers' knowledge about the language under investigation will supply the fieldworker with the categories which will tell him whether a particular linguistic form is "verbal play" or "functioning style." Consequently, particular attention will have to be paid the community's distinctions between verbal play and special language, between casual and noncasual speech.

Haas has also described a word game played by Thai children which is not extrinsic to the game-as-focal-activity, as in the example of Conklin; but it is rather intrinsically a game--that is, it is a game about words played with words. Such games--where they exist--will doubtlessly be very productive of insights into the acquisition of language habits. Since these games are played with consciously developed rules, the child's conception of every level of language may be opened to the fieldworker. Haas describes the "first syllable rhyme" game of the Thai; in American Negro culture there is the "name game" which emphasizes rhyming as well as illustrates the phonetic pattern of syllables in English morphology.

These kinds of games can be discovered through observation or enquiry quite early in a field stay. They should be intensively monitored and recorded over the whole period of the investigation because they can be an extremely fruitful source of linguistic information; they are most likely to be the kinds of games which can be stimulated by the fieldworker and played at his request. In a similar manner, role-playing can often be elicited by the investigator who brings props and suggests children enact easily sterotyped adult roles. Different kinds of roles may appear as children mature socially.

The value placed upon language and its use in any culture may be reflected in the accepted attitudes in the adult community with regard to the playing of these games by children. Are they encouraged, tolerated, discouraged? Are there sanctions for or against role-playing by children? The number and kinds of verbal games played in the sub-adult community and the ages at which verbal play is begun and terminated may be directly related to the importance of language in the adult speech community.

3.5.3. Natural Conversation

In every society there are rules for organizing interaction. Some of these can be characterized formally as rules for the selection of alternatives in a repertoire. For example, a child must learn what form of request is appropriate to a peer or to a senior, forms of address, what lexicon to select in a multilingual community, and so on. These selection rules can be characterized formally. Then a child's learning of the rules can be studied just as his learning of the grammatical rules is examined, as a development of a set of ordered behavior. The difference is that the entries in sociolinguistic rules include social categories.

However, there are other rules for organizing interaction that pertain to the internal structure of communicative events. There has been some work on the analysis of such events, for example by Frake (1964a) who described the structure of drinking occasions among the Subanun. Ceremonial events have of course been described often by ethnographers; Emily Post has had a lot to say about American norms for certain social occasions.

A recent trend in American sociology has been the analysis of tapes of natural conversations, phone conversations, and so on. Such analyses reveal far more internal structure than has hitherto been realized. At the end of this section some of the findings from such research are characterized, as an indication of what might be found by systematic study in other cultures.

What kinds of interactional events might have such internal structure? The following are some suggestions of places to look.

Rounds

In a round (such as an exchange of jokes), each member must contribute. Some examples are:

1) Opening and closing conversations in natural encounters:
    - Greetings.
    - If a newcomer encounters a group, communication about what the ongoing activity was.
    - Ways of terminating conversations, of signaling the end.
    - Farewells.
2) Insults and replies.
3) Quoting. How can one disengage oneself for responsibility for an utterance by citation?
4) Definitions. If someone asks what a word means, how are words (of various kinds) defined?

Section 3.5.3. was written by Susan M. Ervin-Tripp.

5) What is the structure of an explanation
   of the operation of a device?
   of a natural event?
   of human behavior?
6) Starting a conversation. How does one get the attention of another?
7) Structure of natural narration, when describing one's own experience.
8) Correcting others. Can a child correcting others identify the error?
9) Announcements and congratulations or condolences.

Children may not engage in all of these kinds of acts. They may not be expected, for example, to give definitions, though eventually they may be pressed by younger children to do so in some form.

Some classes of events are inevitable. For instance, all children must learn how to get the attention of someone who is preoccupied. The investigator might examine whether they have an idiosyncratic method or are taught some standard method which is the same as or different from that used by their seniors.

Narration

The structure of narratives in oral tradition has been a topic of study for many years. However, it is usual for individuals to report personal history items too, and these can be considered narrations. A person who tells stories about his own experience or that of others may well be called upon to do so repeatedly until the stories enter the oral tradition of his community. For this reason there is some continuity historically between the personal narrative and traditional narrative. In addition, persons skilled in traditional narrative may use a different structure in personal narratives.

Labov and Waletzky (1967) recently presented a method of formal analysis of narratives which has great promise for systematizing such studies. Their method involves identifying the component clauses in the narrative first. A set of these can be called the temporal sequence. These clauses (independent clauses) refer to events ordered in time in correspondence with the events in the semantic interpretation. Displacement sets refer to the range of clauses within which a given clause can be moved about without altering the semantic interpretation. The narrative clause has an unordered displacement set, a free clause could occur anywhere in the narration, and a restricted clause has some displacement limits. In analysis of order in natural narratives, the authors found that there was a maximal form of the narrative, including orientation, complication, evaluation, resolution, and coda, which could be defined in relation to clause types, and only some of which might be present for any narrator.

This kind of analysis could be done from recorded narratives. To see if age changes in narrative structure occur, each child in the sample should be asked some regular questions about his earlier experience. On the basis of the daily routine study on the children (Section 1.5.1), a good deal will probably be learned which would suggest appropriate types of narrative to elicit.

Conversational Sequence

The following material is taken from class notes of Harvey Sacks, UCLA. It is an analysis of some material obtained in recorded conversations. In method, the approach consists of asking of each sentence: "Could it have been otherwise, and if so, what would it mean?" Obviously a native speaker is needed to work closely in answering such questions.

Conversations in English include certain slots. If the routines appropriate for these slots are left out, usually some indication of the omission is given. Greetings occur on first encounter. Next there may be an invitation, a rejection, or a pre-invitation. An example of a pre-invitation is a phone call. "Hello, what are you doing?" The listener knows that if he says "nothing" he will be given an invitation of some sort. An invitation might be "Hello, we were talking about the draft," if the listener might be considered able to talk about the draft. If the listener is not, then the remark is a rejection.

When the conversation is between strangers, there is a self-identification slot. If one person introduces himself, the other person is expected to do so too. If the event is displaced, it may be prefaced by, "by the way..."

Conversational sequence rules are such that if there has been an adequate complete utterance it is assumed that the other in a dyad has the right to speak. If the speaker asks a question, the person to whom it is directed has prior claim over others to the floor. Then the question-asker has the right to speak again. Do children recognize rules about who has the right to the floor?

There are various sequencing rules which tie one utterance to another, such that if one takes the utterance of one person it can be seen as belonging to a first speaker who must have preceded another (e.g. a question), or to a second following a first (e.g. a pronoun, a dependent clause), or even to a third, as in, "I still say, though..."

Pronouns

While linguists normally analyze pronouns in terms of overt categories like person and case, if one examines the semantic interpretation for pronouns they may have much richer usage. For example, English we can be used to refer to a we-exclusive in which we excludes you and implies a membership group like men, old people, Communists. It can be used to refer to the actual actors or to fellow-members of a group, as in "we won the game." (You don't look very bruised.) Note that some languages explicitly distinguish we inclusive and exclusive. My has even more complex properties, including the varieties of ownership and its transitivity.

You in English is not only the second person of address. It may stand in contrast to we and its plural might be they, as opposed to we. Or it can mean the singular of we when the addressee is included in we. It can also mean everybody, i.e. we and they together.

Membership Categorization Devices

How do you identify a third person for the benefit of an addressee? I.e. how do you introduce newcomers; how do you answer a question like "Who's that?" In English, in many situations a proper name is inadequate, and speakers employ a membership device. If one membership class is used to introduce the first of a series, the same device (e.g. profession) tends to continue. If a single person is to be identified, it may be done through the means of a linking person who enters into a dyadic relation to the addressee and the person to be identified. E.g. "Who's that?" "It's Joe's wife."

We have suggested in Section 1.5.4 that the easiest place to focus in the analysis of natural conversation might be on routines, since they are easy to identify, and probably explicitly taught. Narrations might be another good focus since they could be explicitly requested from children. For the rest, we hope that alert ethnography will begin to identify fruitful points for further analysis.

3.5.4. Multilingualism and Multidialectism

The problems involved in studying the acquisition of language by children are compounded in multilingual or multidialectal situations. However, these phenomena are so widespread that they can hardly be avoided in most studies of the sort outlined in this manual. In the following discussion, the term "multilingual" is used, but the reader should bear in mind that very similar questions can be raised in regard to multidialectism. (A valuable reference is the most recent publication in this field, Problems of bilingualism, edited by John Macnamara [1967]. Case histories of bilingual children are listed in Appendix 5.)

For purposes of analysis the multilingual situation may be studied from three interrelated points of view: the linguistic, the sociological, and the psychological. A linguistic description would encompass a structural description of the individual languages or dialects involved and a structural description of the phonic, grammatical, and lexical interference that takes place in the languages as they are spoken by the multilingual individuals under investigation. A study of multilingualism from a psychological point of view would involve such things as the individual speaker's relative aptitude in the particular languages, his ability to switch from one language to another, the order in which the languages were learned, the effect of multilingualism on speech ability or skill, and the like. Finally, multilingualism as studied from a social point of view would involve the setting in which a particular language is used, the relative status involved in speaking one language or another, language loyalty or feelings of the value of certain languages as opposed to others, and so on.

The separation of a multilingual phenomenon into its linguistic, psychological, and sociological aspects, as pointed out above, is arbitrary and all three of these aspects are interrelated and influence one another in such a way that isolation of an independent variable is difficult if not impossible. For purposes of description in the field situation, however, this trichotomy is perhaps a useful one. A study of multilingualism that aims for anything near completeness is an overwhelming project in itself and we can deal with it only in the broadest terms as it may affect the acquisition of language by children.

Linguistic Aspect

A structural linguistic study of the languages involved in a multilingual situation and of their influence upon one another is so broad in scope as to be beyond the ability of an investigator who is limited to one or two years in the field. A complete study would involve a sophisticated description and analysis of each of the languages involved, not only as they are spoken by monolinguals, but also as they are spoken by

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Section 3.5.4 was written by Keith Kernan.

multilinguals. Such studies would yield the raw data necessary for a study of the degree and type of linguistic interference between languages in multilingual speech communities. If one is primarily interested in the acquisition of language by children, however, such an extensive study is not necessary.

Children acquire the language of the adult speakers of the speech community in which they are reared. In a multilingual speech community the particular languages, as they are spoken by the adults of that speech community, serve as a model for the child. What is necessary, then, is a structural description and analysis of the particular languages as they are spoken by the adults with whom the child has contact. In other words, the linguistic repertoire of the adults of the child's speech community must be described. Of course, it is possible that in some cultures the adults will not have as much contact with young children as do older siblings, for example. In these cultures the final acquisition of the adult language by the young children is mediated by the speech used by their older siblings, who serve as linguistic models. For this reason, the language and speech behavior of older siblings must also be thoroughly described. The individual languages as spoken in a multilingual speech community will probably not be exactly the same as the languages as they are spoken in a monolingual speech community. That is to say, interference between the various languages may have taken place. For this reason, linguistic description and analysis done by a researcher in a monolingual speech community will not serve as an accurate model against which to compare the speech of a child in a multilingual speech community. Published analyses of the individual languages involved will still be of great use, of course, but, if possible, the investigators should compare these analyses with the language as it is spoken by adults of the multilingual speech community and they should be aware of any existing differences. For types of linguistic interference that might take place see Languages in contact by Uriel Weinreich (1953). (Specific procedures can be found in Section 2.1, Contrastive Analysis.)

Psychological Aspects

By psychological aspects we mean here the description of the acquisition of the languages by individuals. Data should be obtained on the following points:

1. Age at which each language is acquired
2. Order in which the languages are acquired
3. How and where is each language learned? That is, can one language be considered primary because it is learned first? Are the languages all learned by exposure to them or is there formal instruction in some of them? What language is spoken in the home? Are the parents monolingual or multilingual? Do all the adults with whom the child has contact speak the same language or languages?
4. Do all children in the speech community learn the same languages or is there some differentiation by sex, status, caste, and the like?

5. How much is each language used relative to the others?
6. What is the relative proficiency of the adults and children in eacn of the languages?

Data for all these points, with the exception of the last, should be obtainable through interviewing or direct observation. For relative proficiency in each of the languages some sort of testing will be necessary. (Measures of multilingualism can be found in Appendix 3.)

Sociological aspects

By sociological aspects we mean here the values connected with the languages in a multilingual speech community, the situations in which the particular languages are used, the people with whom particular languages are spoken, the special functions of particular languages, and the like. We are interested in determining how the members of a multilingual speech community feel about the languages they speak and what the rules are for deciding to use one language rather than another.

The values peoples may hold regarding the language or languages they speak vary widely cross-culturally. In a multilingual speech community the values held by the members regarding one of their languages may be quite different from those held regarding another. On the one hand, for example, individuals may hold the local dialect in such low esteem as to deny being able to speak or understand it. On the other hand, a particular language may be considered the mark of an educated man and, as a result, be highly valued. Some sample questions regarding values concerning languages are:

1. Which language is most difficult to speak?
2. Which language is more beautiful? logical? expressive?
3. Which language is more difficult to learn?
4. Is the ability to speak more than one language related to intelligence?
5. Is it desirable to be able to speak more than one language?
6. If you could only speak one language, which one would you rather speak?
7. Why is individual X able to speak only one language?
8. Which language do you speak best? (As checked against the objective measures of language ability mentioned above.)
9. Which language is most useful?
10. Is it permissible to use words from one language while speaking another language?

The use of a particular language in a particular situation by a particular group of interlocutors does not seem to be a matter of random choice. Rather, the selection of a certain language to be used in a particular situation seems to be patterned and governed by a set of cultural rules. That is to say, it is culturally appropriate to use one language in one situation and another in some other situation. An attempt should be made to discover the rules that govern the choice of language appropriate to the situation. Informants may be questioned about what language should be used in what situations, but since the rules governing such language choice are not always conscious or explicit it will be necessary to observe ongoing linguistic interaction.

Some variables that may be relevant are: the topic under discussion; the culturally defined scene (e.g. a religious meeting, an informal gathering of friends, a classroom, etc.); the relative status of the interlocutors vis-à-vis each other (e.g. father-son, stranger-stranger, high status-low status, etc.).

Once data concerning these variables have been gathered it may be possible to isolate the relevant dimensions that define whether one language or another should be used. For example, if language A is used when speaking to one's father, employer, minister, and teacher, one of the criteria for deciding to use language A may be some feeling of respect or deference. After such dimensions have been tentatively isolated it may be possible to test conclusions by questioning informants or by constructing hypothetical situations and asking them which language they would speak. Such hypothetical situations should begin with a minimum of data regarding the variables suggested above. In this way it should be possible to determine what information the informant must have before he is able to determine which language he should use, and, therefore, which information is relevant. For example, the informant might be asked what language he would use if he were speaking to his minister or priest. If he were unable to answer or if there were no agreement across informants, the next question might be, "What language would you use if you were speaking to your minister in church?" If an answer was given and checked across informants, the next question might be, "What language would you use if you were speaking to a friend in church?"

It may also be possible to set up situations in which people interact linguistically and then to introduce other individuals who differ in some culturally relevant way to determine if the language being used changes. Informants should be questioned following all such observations to determine if they are aware of language shifts and the reasons for them.

Tape recordings of actual linguistic interaction may be played to informants to determine whether they are able to give any information regarding the setting or interlocutors. Such recordings should be edited to remove any conversation that might serve as a clue to setting and interlocutors by means of what is said rather than the way in which it is said.

All the procedures given above should be employed not only with adults but also with children of various ages to determine when children acquire the linguistic and speech rules.

3.5.5. Linguistic Taboos

All cultures probably have some linguistic forms which are taboo, though the range of semantic domains involved may vary from culture to culture. Taboo forms can be used appropriately only under severely restricted circumstances; when uttered inappropriately they generally call forth potent negative or ambivalent affective reactions. The societal consensus is that there is something disagreeable, dangerous, or offensive about the common use of such terms. Thus, even though the denotative range covered by this area of the lexicon may be fairly broad, the collection of taboo forms expresses a limited range of connotative meaning.

In terms of child language, we are interested both in the acquisition of this special vocabulary and of the rules for its use. The development of affective relations to such terms raises interesting psychological questions as well. How early does the child in a given society come in contact with linguistic taboos? How early are the proper attitudes acquired? How do taboo words function for the child as compared with the adult (e.g. do they serve as an aggressive outlet for frustration)? Does their use by adults in child-rearing instill in the child any particular feelings towards authority?

The investigator may be faced with special difficulties, in some cultures, in attempting to answer such questions. The mixture of prohibition, sanctity, danger, and pollution which seems to be inherent in linguistic taboos may lead to a certain reticence on the part of informants when it comes to pronouncing or discussing the relevant terms. The researcher should be alert for taboo markers, such as apologies or strong reactions by an audience on the occasion of the breaking of a taboo. An educated bilingual informant may be an excellent source of information about linguistic taboo (perhaps late at night over beer, or in some such situation). Taboo terms can sometimes be elicited from children in doll-play situations. For example: "This doll has just said something bad. What did she say?"

A taxonomy of linguistic taboos may be of help to the researcher. Our own culture recognizes three separate varieties by the terms obscenity, profanity, and gaucherie. These categories appear to be based upon concepts of decency, fear, and delicacy, respectively, and are listed above in what appears to be a descending order of offensiveness. It is, in fact, questionable whether or not gaucherie constitutes the breaking of taboo. In any case, it lies somewhere on a continuum between mild rules of propriety and more severe taboos. An American dictionary would show that in our culture obscenity consists of offensive terms for body parts and functions, whereas profanity concerns the verbal descration of something held sacred--that is, the use of a sacred term in an

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Section 3.5.5 was written by Brian Stross.

inappropriate (literally "profane") context. The American dictionary would further subcategorize profanity into: (1) blasphemy, an intentional verbal defiance of a supreme being; (2) swearing, the indulgence in profane, often meaningless oaths; and (3) cursing, which implies the invocation of disaster upon the object of one's wrath.

Just as profanity can be subcategorized in our culture, what can be glossed "obscenity" is, in some societies, linguistically divisible into references to sex and references to any other taboo body functions, and, in other societies, divisible on different bases.

There are degrees of taboo. These may be measured in any of three ways: (1) the restrictedness of the circumstances in which the taboo form may be appropriately uttered (e.g. some obscene terms in English are presumably never uttered and indeed not even known by women); (2) penalties that follow an adult's improper usage of a taboo form (these range from no penalty at all through a mild verbal reproof to actual death sentence); (3) reactions of the audience upon hearing an appropriate (or inappropriate) use of a taboo form (these may range from no surprise at all through severe shock, with embarrassment, apprehension, and indignation somewhere in between).

Some linguistic taboos are restricted to particular segments of society. Some forms are taboo to women but not to men. Some are taboo to children, but not to adults. Some forms cannot without great risk be pronounced by anyone but the village shaman; while on the other hand the high priest of Jupiter in ancient Rome was the only person to whom naming some things such as a dog, ivy, or a goat was taboo. It is important to ascertain for any given taboo form the degree of community participation in and knowledge of this form in order to determine its relevance for a given child in the society.

Some linguistic taboos are temporary. In Tahiti for example, words resembling the name of the king were taboo only for the duration of his reign. In some South American Indian groups pronouncing the name of a game animal is taboo during the hunt, but not at other times. In many South Sea islands there is a taboo on the utterance of a dead person's name. Needless to say, temporary taboos are not as widespread as are permanent ones.

In some societies there are formulas or other devices, preceding the utterance of all or some taboo forms, used to vitiate or remove the bad effects of breaking a taboo. These should be closely watched for because they are overt markers which can be used as a lever for gaining more information in this domain. In addition, it is important to find out just what the effects of using the device are, and on which taboo forms the device works.

Trespass of verbal taboos is sometimes followed by an apology. The apology may be specific to a particular form or to taboo forms in general. The apology may on the other hand, be the same as would be used for other circumstances. The obvious question that should be asked here is, at what age does the child learn to use these apologies and who teaches him?

One of the consequences of linguistic taboos is the disappearance through time of lexical items from a language. The word for "left" has disappeared from several of the Indo-European languages in this way. Some taboo words are themselves quite stable in a language while their homonyms disappear as a part of the process of linguistic change. For example, the animal names cock and ass are gradually being replaced in American English by rooster and donkey respectively. Since word taboo has a role in this type of language change, showing affective transference through homonymy, it would be interesting to know at what ages and to what degrees this homonymy with taboo forms is noticed by or is important to children. It is quite possible that the progression goes from non-recognition of the homonymy, to hyper-recognition, back to normal or average adult level.

One of the means of getting around the utterance of taboo forms is by the use of inverted speech, saying the opposite of what is meant. This is restricted usually to highly specific conditions. Some American Indian groups use inverted speech when preparing to take to the warpath, explaining that if it were not used the enemy would find out the war plans in time to counter them.

Another way of avoiding taboo forms, far more generally used than inverted speech, is the use of euphemisms. A euphemism is a linguistic form that is not taboo, but which can be used in place of the taboo word, leaving the meaning more or less clear. Euphemisms are constantly being developed in a language, and when the taboo form substituted for is not lost, the euphemism enriches the language. Euphemisms, when they become too closely associated with the meaning for which they were designed, often become taboo themselves. Such is the case with our word "whore," at one time a polite euphemism.

Linguistic taboos often reflect non-linguistic practices. Mother-in-law avoidance frequently goes along with a taboo on pronouncing her name. The taboo in America against the use of personal names in certain situations (e.g. a judge in court) corresponds with other forms of deference accorded a person. Taboo American terms regarding sex correspond quite closely with non-linguistic practices and attitudes. In short, the observance of linguistic taboos is simply one aspect of proper etiquette in a given society. When a child learns taboo words he also learns what corresponding objects or acts are taboo; that is, the acquisition of taboo vocabulary should somewhat correspond to the acquisition of morality and etiquette.

Some of the things that have been noticed about linguistic taboos among children point up not only how different children are from adults, but also how inventive they are. Children will sometimes, when alone, repeat a taboo word over and over, possibly feeling its power. Some words which are not taboo in the adult vocabulary will be considered taboo by children for no apparent reason. At times the reason can be traced to a homonymy with a word which is taboo for adults. Children can also invent their own special words and secret signs and imbue these with the power of taboo. Temporary taboo of certain words plays a part in some children's games. Much data is necessary to make clear to what extent these observations apply to other cultures.

One way of presenting suggestions for collecting data in the field is to take a limited area as an example. Although obscenity is only one area of taboo it will serve as an example for methods of gathering information on linguistic taboos in general as they relate to the acquisition of language by children. Other forms of taboo should be amenable to similar questions and field methods.

Obscenity

Obscenity is here used to mean disagreeable or offensive terms (gestures, words, or other symbols) pertaining to parts of the body or functions performed by the body or its parts. The existence of obscene terms is not a cultural universal; for example, the Mohave have no obscene vocabulary (Devereux, 1949). Where obscene vocabulary is present, its relation to the rest of vocabulary is highly variable. There may be a series of euphemistic circumlocutions paralleling the obscene terms; there may be a technical terminology; or there may be some things only talked about in obscene terms.

The fieldworker should find out which forms are obscene from adult informants, for the whole range of obscenities provides a yardstick against which to measure various degrees of acquisition. One way of obtaining the catalog of obscenities is to elicit the names for body parts, their synonyms, and their functions, noting affective reactions to the giving of terms. If obscene terms cannot be elicited in this manner, an alternative method would be to somehow learn one obscenity and, using this obscenity as an illustration of what forms are desired, go through the list of anatomical terms already collected, asking which synonyms have similar connotations and again observing reactions to the forms. It should be understood that the category "obscenity" is not present in all cultures, and that where it does exist the semantic boundaries of the domain may not coincide exactly with the area of body parts and functions. Therefore the fieldworker should be specific in defining the domain covered by the native term that could be glossed "obscenity."

Obscene gestures and graphic symbols should also be obtained from the adult informant, as well as any verbal forms that accompany them in their execution, names for the nonverbal signals, and explanations for what they are supposed to signify. Important, too, are any non-obscene locutions that take the place of obscenities, such as euphemisms, technical terms, and the like, and the conditions for their use.

In connection with the use of obscene terms it is advisable to attempt to ask direct questions about the social functions of obscenity, appropriate situations for the use of obscenity, and particularly inappropriate situations for the use of obscenity. If no answers can be obtained to such questions, tentative hypotheses can be checked in interviewing informants.

Observation of natural settings will be necessary to find out the age at which the first obscenity is heard by a given child, the age at which the first obscenity is employed by the child, and how it is employed. Although it will often not be possible to know that a given instance is the first, parents or relatives will sometimes remark about precisely this circumstance.

Other questions that can be answered primarily through observation are:

1) How correctly does the child learn obscenities phonologically, grammatically, and semantically? Does the child at first, often, or ever misinterpret the meaning?

2) Does the child learn obscene words before obscene gestures or graphic symbols?

3) What obscene private and idiosyncratic words are there for body parts of functions? What is their derivation?

4) Who teaches the child obscenities: do they do so consciously or unconsciously? Are these teachers adults or other children, kin or non-kin, parents or siblings, and so on?

5) What steps are taken by adults to limit the child's access to obscene vocabulary? (E.g. in some literate societies, obscenities, if used in front of children are spelled out.)

6) If an adult ever explains to a child that a locution is obscene, in what terms is the explanation couched?

7) What is the reaction of hearers (adults, children, etc.) to a child's usage of obscenity?

8) Who punishes the child for inappropriate usage, and how?

Obscenity is one of a set of related categories. These categories share the element of taboo. As such they involve much affect, power, and ambivalence. Regardless of the structuring of the domain of taboo forms in a given culture, categories other than obscenity can be approached in the same fashion as that presented above, and the observer should be mindful not to impose his own culture-bound structuring on the informant's world.

The partial checklist presented in Table 14, below, is simply a listing of some of the domains that have been found in various cultures to be fertile sources for linguistic taboos. It is by no means to be thought of as any more than suggestive in dealing with a specific culture.

Table 14. A Partial Checklist of Potential
Taboo Domains (after Kany, 1960)

- Superstition
    - names of animals
    - diseases
    - physical defects
    - death, killing
- Religion
    - blasphemy
    - cursing
    - evil eye
    - swearing
- Delicacy
    - family relationships
    - forms of address
    - occupations
    - age
    - physical appearance
    - death and mortality
- Mental and Moral Defects
    - stupidity
    - insanity
    - anger and scolding
    - drunkenness
    - lying
    - avarice
- Financial Status
    - poverty
    - wealth
    - money
    - debts
- Offenses
    - stealing
    - bribery
- Decency: The Body
    - body odors
    - underwear
    - belly
    - breasts
    - posterior
    - sex organs
    - body excretions
- Decency: Love
    - concubine
    - prostitute
    - pander
    - brothel
    - effeminacy
    - coition
    - onanism
    - pregnancy
    - giving birth

3.5.6. Speech Acts:
Notes for Designing a Cross-Cultural Study of the Speech Act of Promising

Promising, commanding, giving a verdict, making a vow, predicting, reproaching, hypothesizing, asserting, requesting, are examples of a class of acts that necessarily involve the use of language, that is, the uttering or writing of words (sentences) of a language. In the recent literature in the philosophy of language, they have come to be known as speech acts, or language acts (e.g. Searle, 1965). Speech acts are especially significant to the study of the child's acquisition of language because the performance of these acts is a primary purpose speakers of a natural language have for producing speech events. There are arguments in favor of regarding the speech act as the fundamental unit of linguistic communication, that is, the basic complete linguistic thing a speaker is typically doing in producing any speech event in a communication transaction. Language presents itself as natural data in space and time primarily in the form of speech acts.

In the typical speech episode, the speaker produces a speech event with the intention of producing certain cognitive effects in the listener, and he does this by means of the listener's recognition of the effects intended from the conventional meanings of the words uttered by the speaker, together with the context in which the words are uttered. Important aspects of learning one's first language, then, are learning the sorts of cognitive effects one may conventionally produce in listeners and learning to recognize what cognitive effects others intend to produce in oneself through one's own recognition of the effects intended from the words uttered by others in particular contexts.

Cognitive effects that are produced only by the use of language,* in accordance with the given schema above, shall be here referred to as conventional effects. There are two types of conventional effects that are usefully distinguished for the purpose of describing the component of the act: (1) those cognitive effects produced by way of the recognition of the proposition expressed by the utterance of the sentence (content effects), and (2) those cognitive effects produced by the recognition of the force with which the expressed proposition is intended to be taken or understood (force effects). The production of the sentence is the component by which the speaker produces the content effects (proposition), and the employment of function-indicating devices is, in part, the component by which the speaker produces the force effects.

Section 3.5.6. was written for the field manual in 1966 by Charles A. Welsh (Department of Psychology, University of California, Berkeley).

* Effects which can only be produced by means of language (illocutionary effects), as distinguished from effects which may be produced by either linguistic or nonlinguistic means (perlocutionary effects). See Austin (1962). Here I am roughly following the analysis set forth by Searle (1965).

The speaker succeeds in the production of the content effects if he succeeds simply in uttering the words of the language in conformity with the rules governing the syntax and the semantics of the language. The conditions of success for the production of the force effects, however, are not internal to the rule structure of the language system. In order for the speaker to succeed in producing the intended force effect, certain specifiable background conditions, content conditions, and procedural requirements must be satisfied. In promises, vows, oaths, bets, and the like, the speaker, by uttering a sentence, expresses a proposition to the effect that the speaker will do or will refrain from doing some specified type of action at some (usually) specified time in the future; and, by way of employing such function-indicating terms as "I promise," "I swear," "You have my word," and so on, the speaker indicates the force with which the proposition expressed is to be taken, that is, as a promise rather than as a prediction or as a mere expression of intention. However, in order for the speaker to succeed in producing the force effects, that is, succeed in making a valid promise, certain conditions must be met; these include certain background conditions (such as being in a position to promise the content of the proposition), certain content conditions (such that the thing "promised" is not injurious to the promisee), and certain procedural requirements (such as having witnesses present, or raising one's right hand while resting the left hand on a Bible, etc.).

The central investigation of the speech act of promising is perhaps the best place to begin a cross-cultural study of the child's acquisition of speech abilities. In the first place, "promising" has received the most explicit and intensive analytic treatment of any in the relatively recent literature on the subject of speech acts in linguistic philosophy. We are thus equipped with at least a fairly lucid and detailed paradigm against which we may test for similarities and differences of other cultural forms of the activity along quite subtle dimensions of sociolinguistic behavior. In the second place, promising is a form of activity that has the special advantage of being slightly more formalistic and conspicuously rule-governed than the more humdrum types of speech acts such as "telling," "questioning," "exclaiming," "remarking," and the like. This feature of promising should afford the fieldworker the advantage of observing a more prominent species of a fairly subtle class of behaviors--a species, indeed, that one may expect to find accompanied by ceremonies, rigid formulaic invocations, and various types of explicit ritual procedures. In the third place, since promising is a form of activity that is an essential underpinning of certain types of business and commercial practices involving the exchange of goods, credit, and bargaining, the fieldworker has the advantage of knowing where to look for what might be expected to be more highly explicit and even legalistic elaborations of the informal activity of promise-making, promise-breaking, and recourse to be found in the less structured practices of everyday life. But even here promising would be expected to penetrate the more serious, less entertaining activities that involve division of labor and cooperative, organized behavior extending into the future. Finally, the speech act of promising should afford the cultural anthropologist the opportunity of studying the intimate connection between a well-defined system of interconnected linguistic activities--promising, excusing, justifying, nullifying, morally criticizing, accusing, securing remedies, formulating sanctions, giving verdicts, adjudging fault, and the like--and the nonlinguistic organizational aspects of a culture. That promising belongs to a small system of linguistic practices, closely associated with general nonlinguistic aspects of cultural organization, should be of particular advantage to the psycholinguist who wishes to study the child's development of speech activity in relation to the child's acquisition of the rules that enable him to participate in the forms of life made available to him through the conventions of his particular culture.

A cross-cultural study of the child's acquisition of the rules constituting the speech act of promising requires a prior analysis of the rules underlying the adult activity of promising in each culture. For suggestions about what the investigator might look for, both in the child's and in the adult's practices, in order to form a picture of what promising consists in for each at their different levels of acculturation, it will be useful to identify the various types of relations and elements that constitute our own particular form of promise-making, promise-breaking, promise-keeping, promise-nullifying, and the associated activities of excusing, justifying, pardoning breaches, and so on.

Roughly, the core feature of promising consists of creating an expectation in another (called the promisee), by uttering or writing words, under certain circumstances and in accordance with certain conventional procedures, to the effect that some specified thing will or will not be done by the promisor, or that some condition or state will be maintained or changed, at some specified time in the future or for some specified or indefinite duration extending into the future where the expectation so created is given security by the promisor's self-imposed obligation to fulfill the terms of the promise, and a coordinate right is conferred on the promisee to exact compliance or to apply the appropriate moral sanctions in the case of nonfulfillment, in the absence of justifying or exculpative circumstances.

Ordinarily, promises are effected by the speaker uttering a sentence of the form, "I promise I'll do X." in the presence of another person to whom the promise is made; where the utterance, "I promise" is the function-indicating device, and the utterance of "I'll do X" expresses the content of the promise. In promises, on the one hand, the function-indicating device may be the utterance of any one of a recognizable class of "binding words," such as "I'll warrant you," "I'll answer for it," "You have my word," "So help me God," and the like, or they may be absent altogether when the context or solemnity of the matter conveys the speaker's intention to be bound by what he says he will do. Bets and wagers, on the other hand, normally need to be sealed with a handshake and/or the verbalization "Done," "You're on"; oaths and vows require the utterance of such phrases as "I swear," or "I do hereby solemnly swear," and the like, in the presence of appropriate officials and witnesses, and in a standing position with one's right hand raised or placed over one's heart and one's left hand resting on a sacred document, necessarily while conscious, knowing, sane, free, and sincerely willing.

Restricting the discussion now to ordinary informal promises, I shall briefly indicate the essential rules, conditions, and restrictions that apply to the speech act of making a valid promise.

Rules Applying to the Communication

1) The force and content of the utterance must be understood by the promisee as intended by the promisor. No promise has been effected, for example, if the utterance is in Spanish and the other person is a non-Spanish-speaking Chinese, or deaf, or nescient.

2) The utterance must not be said as or taken as a joke, nor can it be a line in a play, or the like.

3) The utterance must be accepted by the promisee. No promise is effected if the "promisee" refuses the promise.

4) In uttering the appropriate words, the promisor must at least intend to take responsibility for creating the appropriate expectation on the part of the promisee, namely, that he, the promisor, intends to undertake an obligation to do the thing stated, and intends that a coordinate right be conferred thereby on the promisee to exact compliance, or to apply the appropriate moral sanctions in the event of nonfulfillment.

Rules Applying to the Parties to the Promise

1) The promisor and promisee must be sane, conscious, and aware of the nature of their transaction. A promise has not been effected if a person utters the crucial words in his sleep or in a delusional drug state, or under hypnosis; nor if the words are uttered to a person in any such state, or to an infant, or an idiot, or a lunatic.

2) The parties to the promise must be persons or legal persons (e.g. corporations). A person cannot promise a tree, nor can a computer promise a person.

3) The promisor must be the person doing the promising. A person cannot have someone promise for him, nor can he promise for someone else; except, perhaps, in special cases, such as proxy marriages, where the absent party may delegate to a third party the right and power to promise for him.

4) The promisor must be acting out of free will. No promise is effected if the promisor is forced to utter the crucial words at gun point, or while under any form of duress, threat, or coercion.

5) The promisor must not be acting under any illusions perpetrated by deceits or concealments on the part of the promisee.

Rules Applying to Content

1) The thing promised must be presumed by the promisor to be to the advantage or in the interests of the promisee, or to be something that the promisee would rather have done than not done. One cannot promise to do what would be, or what may reasonably be thought to be, injurious or discomforting to the promisee.

2) The thing promised must have reference to the future. One cannot make a promise to have done some specified thing in the past.

3) The thing promised must be possible, or considered to be possible at the time of promising. One cannot promise to walk on water, square a circle, or confer a degree when one is not officially entitled to do so.

4) The thing promised must be legal and moral. One cannot promise that which is, or may be expected to have become, illegal or immoral at the time of fulfillment. The promise is automatically nullified if at the time the promise matures intervening changes have rendered the thing promised then illegal or immoral.

5) The thing promised may not be what one may be presumed to do anyway in the regular course of events.

Rules Applying to Exceptive Conditions

Promises are made in view of expected natural contingencies. They are strictly binding in the absence of special recognizable types of circumstances, which should they arise would provide grounds for requesting release from the promise, for annulling the promise, or for excusing or justifying nonfulfillment of the promise.

1) If any of the preceding rules are discovered to have been violated, the promise is null and void.

2) If intervening circumstances have unexpectedly altered so that the promisor may suffer undue hardship in fulfilling his promise, he has the right to request and expect to be released, at least from the specified due date of the promise.

3) If circumstances are such at the time the promise is due that fulfillment would cause injury to the promisee or to society, or if it would result in the dereliction of an overriding obligation, the promisor is justified in breaking the promise. If an act of nonfulfillment is *justified*, the promisor is responsible but the act is not wrong under the circumstances.

4) If an act of nonfulfillment is *excused*, the act is regarded as a wrongful one, but the promisor is not held to be responsible or wholly responsible for it because of some special circumstance.

The foregoing list of rules probably needs to be amended and added to before a complete and accurate description of promising in our culture is obtained. I hope, nevertheless, that it may serve to suggest the kind of information that would need to be obtained in order to describe and compare the forms that the speech act of promising and associated activities take in cultures other than our own.

APPENDICES

APP.1. TECHNIQUES FOR STUDYING GRAMMATICAL DEVELOPMENT

App.1.1. Model Sentences for Elicited Imitation

App.1.1.1. Brown and Fraser's Sentences (1964, p. 73)

I showed you the book.
I am very tall.
It goes in a big box.
Read the book.
I am drawing a dog.
I will read the book.
I can see a cow.
I will not do that again.
I do not want an apple.
Do I like to read books?
Is it a car?
Where does it go?
Where shall I go?

App.1.1.2. Menyuk's Sentences (1963b, p. 432)

Transformation Type	Sentence
Passive	He got tied up.
Negative	He isn't a good boy.
Question	Are you nice?
Contraction	He'll be good.
Inversion	Now I have kittens.
Relative Question	Where are you going?
Imperative	Don't use my dough.
Pronominalization	There isn't any more.
Separation	He took it off.
Got	I've got a lollipop.
Auxiliary Be Placement	He is not going to the party.
Auxiliary Have Placement	I've already been there.
Do	I did read the book.
Possessive	I'm writing daddy's name.
Reflexive	I cut myself.
Conjunction	Peter is over here and you are over there.
Conjunction Deletion	I see a red book and a blue book.
Conjunction If	I'll give it to you if you want it.
Conjunction So	He saw him so he hit him.
Conjunction Because	He'll eat the ice cream because he wants to.

The Appendices were prepared by Dan I. Slobin.

Pronoun in Conjunction	David saw the bicycle and he was happy.
Adjective	I have a pink dog.
Relative Clause	I don't know what he's doing.
Complement	I want to play.
Iteration	You have to drink milk to grow strong.
Nominalization	She does the shopping and cooking and baking.
Nominal Compound	The baby carriage is here.

App.1.1.3. Mitchell's Additions to Menyuk's List (unpubl.)

(Claudia Mitchell, in conducting a phase of the Field Manual project with Negro children in Oakland, California, has used Menyuk's list, with the following additions.)

She got hit by a car.
They aren't my toys.
Is that a firetruck?
We'll go to the zoo tomorrow.
Now I am older.
What are you doing?
Go to bed.
There are some in the attic.
He put them on the chair.
He's got the measles.
I am really going home.
They have never been here.
I did wash the dishes.
He's playing with his brother's truck.
She hurt herself.
The dog is big and the cat is small.
I saw a boy and a girl.
You can have it if you want it.
I was tired so I went to bed.
He knows how to read because he goes to school.
Daddy came home and he brought me a present.
I have a red bicycle.
I don't know what to say.
I want to sing.
You have to go to school to learn how to read.
I do the singing and she does the talking.
The garbage truck has gone.

App.1.1.4. Menyuk's List of Restricted Forms (1963b, pp. 432-3)

(The following sentences, offered by Menyuk as models for imitation, are forms restricted to child speech.)

Sentence Form	Sentence
Noun Form	
Substitution	We have childs in this school.
Redundancy	Where are the peoples?
Omission	I have two tooth.

Verb Form	
Substitution	He growed bigger and bigger .
Redundancy	He liketed that game.
Omission	He wash his face.
Pronoun Restriction	Mommy was happy so he kissed Betty.
Relative Pronoun	I see a dog what's white.
Adjective Restriction	I write that numbers.
Tense in Conjunction	They get mad and then they pushed him.
Reflexive 3rd Person	He's washing hisself.
No separation	You pick up it.
There Substitution	It isn't any more rain.
No Question	What that is.
Contraction Deletion	They sleeping.
Double Negation	You can't put no more water in it.
Inversion Restrictions	
Verb Number	There's three babies.
Subject-Object	Brothers and sisters I have.
Particle	
Redundancy	Take it in in there.
Omission	Put the hat.
Article	
Substitution	I see a teeth.
Redundancy	His name is a teddy bear.
Omission	Giant wakes up.
Preposition	
Substitution	Daddy took me at the train.
Redundancy	You shop in over there.
Omission	I want to go New York.
Noun Phrase	
Redundancy	She took it away the hat.
Omission	Want it.
Verb Phrase	
Substitution	Say the story.
Redundancy	He'll might get in jail.
Omission	The baby'll.

App.1.1.5. Gleitman, Shipley, and Smith's Sentences (Smith, 1966, p.6)

A Structures (easy to imitate)

Number	Two of the marbles rolled away.
Conjunction	Sam and Ronny built their house.
Complement	I want to play the piano.

B Structures (Difficult to imitate)

Adjective	They played with long yellow blocks.
Verbal Auxiliary	Daddy may have missed the train.
Relative	The lady who sneezes is sick.
Conjunction Inversion	Not George but Danny came along.

Smith adds the following information (pp. 7-8):

> There were ungrammatical sentences of each structural type. The ungrammatical stimuli contained a grammatical error, always in the complex part of the sentence. The errors had to do with either a constant, auxiliary, or inflection.
>
> constant error: Harry likes ride the horses.
> auxiliary error: Harry like to riding the horse.
> inflection error: Two of the marble rolled away.
>
> Length, counted in syllables, was held constant. We found in preliminary work that children of this age [3-4 years] have little trouble with strings of words of 5 syllables or less, that is, they usually repeat them accurately; and that they are usually inaccurate in repeating strings more than 9 syllables long. Our stimuli were 6-8 syllables: it seemed likely that 3-4 year-olds' ability to repeat strings of this length might depend to a great extent on their ability to structure the string.
>
> Simple familiar words were used in each sentence. The children heard several instances, grammatical and ungrammatical, of each structure, but never the same sentence twice. The sentences were randomized and filler sentences inserted between ungrammatical stimuli, so that a child did not hear several ungrammatical stimuli in a row; there were 150 sentences in the stimulus list. . . . Usually two 1/2-hour sessions were needed to present all the stimuli.

App.1.1.6. Osser's Sentences (pers. comm.)

Sentence Form	Sentence
Passive	The boy is pulled by the girl. The girl is pulled by the boy.
Negative	The boy is not on the chair. The girl is not on the chair.
Inversion	Happily the boy is kicking the ball. Sadly the girl is kicking the ball.
Separation	The boy throws the ball far away. The boy throws the ball up high.
Possessive	The boy is pulling the girl's hair. The girl is pulling the boy's hair.
Reflexive	The boy dries himself with a towel. The girl dries herself with a towel.

Conjunction	The boy climbs and another boy climbs. The boy slides and another boy slides.
Adjective	The little boy is flying the kite. The big boy is flying the kite.
Relative Clause	The boy who sits is very fat. The girl who sits is very fat.
Nominalization	Mother does some sweeping with a broom. Father does some painting with a brush.
Transformation-Subordinate	The boy sees that the boy sits. The boy sees that the girl sits.
Do + Negative	The boy does not wear a hat. The girl does not wear a hat.
Transformation-Object	The boy kicks the ball to her. The girl kicks the ball to him.

App.1.2. Comprehension Tests

App.1.2.1. Fraser, Bellugi, and Brown's Pictures (1963, pp. 126-8)

Fraser et al. note the following general principle followed in designing the pictures:

> . . . that the representations of paired utterances should be identical in every respect except the one coded by the grammatical contrast. The two pictures making a pair usually involve the same creatures and things and actions but differ in subject-object relations, in the apparent time of an action, or in the number of creatures performing an action. In addition to the grammatical contrast items the . . . Test includes four practice items involving utterances that contrast in their substantive words, e.g., "The cat with the brown face" and "The dog with the black tail." The corresponding pictures are of the two different animals.

Practice items

The girl with the big hat./The boy with the blue belt.
The girl playing with the doll./The bunny eating the carrot.
The cat with the brown face./The dog with the black tail.
The boy playing with the truck./The mouse eating the cracker.

Test items

1. Mass noun/Count noun: Some mog/A dap.
   Some pim/A ked.

2. Singular/Plural, marked by inflections:
   The boy draws/The boys draw.
   The kitten plays/The kittens play.

3. Singular/Plural, marked by is and are:
   The deer is running/The deer are running.
   The sheep is eating/The sheep are eating.

4. Present progressive tense/Past tense:
   The paint is spilling/The paint spilled.
   The boy is jumping/The boy jumped.

5. Present progressive tense/Future tense:
   The girl is drinking/The girl will drink.
   The baby is climbing/The baby will climb.

6. Affirmative/Negative: The girl is cooking/The girl is not cooking.
   The boy is sitting/The boy is not sitting.

7. Singular/Plural, of 3rd-person possessive pronouns:
   His wagon/Their wagon.
   Her dog/Their dog.

8. Subject/Object, in the active voice:
The train bumps the car/The car bumps the train.
The mommy kisses the daddy/The daddy kisses the mommy.

9. Subject/Object, in the passive voice:
The car is bumped by the train/The train is bumped by the car.
The daddy is kissed by the mommy/The mommy is kissed by the daddy.

10. Indirect object/Direct object:
The girl shows the cat the dog/The girl shows the dog the cat.
The boy brings the fish the bird/The boy brings the bird the fish.

App.1.2.2. Object-Manipulation Tests

(Many of the following tests were developed in Roger Brown's research group at Harvard University, 1962-63.)

Who and what (animate-inanimate) distinction without situational cues: Point to pair of animate and inanimate objects or pictures of objects (e.g. a picture of a man and a picture of a house) and ask: "(Who, what) is that?"

Subject-object: instructions to manipulate two objects, such that one acts upon the other. E.g., "Show me the car pushing the truck." "Make the car push the truck." "Show me this: The car is pushing the truck," etc.

Possessive: "Show me the boy's daddy" (using pictures, people, dolls). "Show me the ship's captain." "Show me the captain's ship."

Indirect object: "Give the daddy the boy" (using dolls).

Locative prepositions: "Put the ball (on, in, under) the cup," etc. "Draw a card." "Draw on a card." (Testing comprehension of object of verb and object of preposition.)

Present two or more pictures and ask: "Give me (show me) the picture of _____." Test comprehension of singular-plural, count noun, active-passive, past-present, etc.

Singular-plural: A number of identical objects, e.g. four stones, in front of child: "Give me (one, three, a, the) stone(s)."

Modifying constructions: "Give me the cup that's (on, under) the table." "Give me the hat that's daddy's." "Show me the one mommy gave you."

App.1.2.3. Bellugi's Word Order Comprehension Tests

Ursula Bellugi (pers. comm.) has suggested that: "In English, one might be interested in studying the effect of word order at various levels. One could construct sets of sentences like the following examples, and force choice by pictures, or perhaps by stories which one sentence would fit and the other not." She suggests the following contrasts, some of which may be applicable to the field language under investigation:

Subject/Object, Active Voice:
The cat chases the dog.
The dog chases the cat.

Subject/Object, Passive Voice:
The girl is pushed by the boy.
The boy is pushed by the girl.

Reflexive/Intensive:
He himself sees.
He sees himself.

Negative in Main/Subordinate Clause:
She can't see where he will go.
She can see where he won't go.

Indirect/Direct Object:
The boy shows the cat the dog.
The boy shows the dog the cat.

Adjectival Modification:
The boy with the big dog.
The big boy with the dog.

Adverbial Modifier:
He naturally did it.
He did it naturally.
Before he went he called me up.
He went before he called me up.

Subject/Object Interrogative:
Who is he feeding?
Who is feeding him?

App.1.2.4. Bogoyavlenskiy's Suffix Comprehension Test (1957)

The test was administered in the Soviet Union in Russian. Children of five to six years were tested for their understanding of diminutive, augmentative, and agentive suffixes. The suffixes were appended to words not familiar to the children (an animal called a *lar*, a sweet drink called *lafit*, and the fabric *kashemir*). The words were used to name pictured referents. The children were then asked to explain the meanings of these words with suffixes attached. If they found this task difficult, the words with the various suffixes were then embedded into stories.

When a child's performance was correct, the experimenter tried to bring his attention to the formal differences between the words. For example, he would ask: "You were right about the difference between the animals--one is little and the other is big; now pay attention to the words themselves as I say them: *lar--larenok*; what's the difference between them?" (Bogoyavlenskiy found that "regardless of the repeated oral presentation of these words, not one of the children (who had no difficulty in determining the semantic difference between these words) could give any sort of answer in this case. The children gave confused and embarrassed smiles, or simply remained silent, making no attempt to analyze the sounds of the words.")

Sentences and pictures such as those used in the Berko test (App.1.3.6.1) could be used in a comprehension test of this sort.

App.1.3. Elicitation Techniques

App.1.3.1. Bellugi's Negation Test (pers. comm.)

The child is asked to provide the negative of a sentence spoken by the investigator. Instructions: "I'll say something and then you say the (opposite or negative). I'll say, 'You can see him.' And you say, 'You can't see him.'" Model sentences such as the following can be used:

Vary auxiliary:
The dog can bark. The dog _____.
The doll will break. The doll _____.
The baby is crying. The baby _____.
The boy wants a cookie. The boy _____.
He went outside. He _____.

Negative with indefinite (increase in complexity):
The girl ate some soup. _____.
She wants some dinner. _____.
Someone saw him. _____.
Somebody is coming in. _____.
The girl asked someone. _____.

Imperatives:
Sit down there. _____.
Come at five o'clock. _____.

Multi-propositional sentences:
I saw the boy who came here. _____.
He asked her to do it. _____.
Someone wants him to take some. _____.
Why does he do it? _____.

Before constructing such sentences, the investigator should study (or discover!) the various rules for construction of negative sentences in the target language. The sentences to be used in the test should sample the range of negation types in the language. (Similar instructions, of course, apply to the construction of all other linguistic materials suggested in the manual: they must be based on a careful analysis of the language in question.)

It would be valuable to first elicit imitations of the sentences from the child. This will give a clue as to what patterns are quite beyond him.

The following techniques may facilitate the application of such procedures to very young subjects. The investigator should use a doll and a collection of objects. The doll should be named, perhaps by the child. The doll is then included in the test; for example: "Joe [child's name], you have a ball. Does Andy [doll's name] have a ball? Andy doesn't have a ball." The experimenter should then keep repeating, "Joe has a ball, Andy doesn't have a ball," until the child can be brought to imitate the last sentence. The test can then continue, perhaps testing another auxiliary: "Joe can run. Andy can't run." And so forth. (It might be necessary to use some reward for the imitation, like giving the child beads.)

After a run of this sort, it may be possible to offer the affirmative sentences and let the child provide the negative sentences without prompting. Perhaps he can be encouraged to talk about "Andy."

A similar game can be played with interrogations, as pointed out below: "You have a stick. Ask Andy if he has a stick." And so forth.

App.1.3.2. Bellugi's Interrogation Test (pers. comm.)

Concentrate on eliciting questions which are structurally difficult or infrequent. Using dolls or puppets, tell the child to "Ask the doll ____," using the indirect form of the question (e.g., "Ask the doll what she wants"). The verb phrase can be anything appropriate to the situation.
For example:

Vary interrogative word:
- what she wants
- where she put it
- when she'll do it
- how she got it

Vary nounphrase and auxiliary verb:
- what she can do
- what I might have
- what they will have been doing
- what the boy is supposed to see

Vary with negative:
- why she doesn't help
- why he won't come out now
- why I can't do it
- why they aren't here yet

Vary subject and object:
- who pushed John
- who did John push

App.1.3.3. Bellugi's Reflexivization Test (pers. comm.)

Reflexivization can be thought of as a grammatical process which can be elicited in a limited way. In English, when the subject and object of certain verbs are the same, the object is reflexivized. In children's speech, one may find intermediate stages like: I made me a telescope or I see me. One doesn't reflexivize in order to make it clear that two different people are referred to by the same pronoun. Compare: He sees himself. He sees him (another person). One can elicit, after providing one (or perhaps more) models of reflexivization. For example, suppose you have two pictures. In one, a boy is washing a dog, and in another the same boy is washing his own face. You label them: "The boy washes the dog." "The boy washes himself." On a new set of pictures the child should be asked to supply the reflexivized form. To test for comprehension of reflexivization at an earlier stage, one might use the set suggested above; that is, a boy looking at another boy; a boy looking at himself in a mirror, and ask the child to choose the appropriate picture.

If you can begin to elicit reflexives, you may use sentences to be filled in, like the following:

Pronominalization:
The boy washed _____.
The girl dressed _____.
The boy and the girl looked at ______.
I see _____.

Imperatives:
Behave _____.
Protect _____.

Sentence boundary: (A particular rule in English is that reflexivization does not take place outside of sentence boundaries. That is, we reflexivize only within simple propositions before they are combined into more complex propositions). Thus, in these sentences, one cannot reflexivize the subject of the main clause:

I want her to take care of_____. (not myself)
John wanted Mary to help _____. (not himself)

App.1.3.4. Bellugi's Tag Question Test (pers. comm.)

Children begin to produce tag questions (He is here, isn't he?) relatively late in their grammatical development. The tag question follows a statement, and generally asks for confirmation of the statement. The same purpose could be served by less elegant means: He's here, right? You have some candies, huh? or, okay? Children use the less elegant construction for some time before they begin to produce tag questions.

Tag questions are particularly interesting because the shape of the tag is explicitly determined by the syntax of the statement it follows. In words, tag formation involves the following processes:

a) pronominalize the nounphrase subject of the sentence.

b) locate (and perhaps supply do or the full form of) the first auxiliary verb of the main clause of the sentence.

c) negate the auxiliary if the sentence is affirmative, do not negate if the sentence is negative.

d) invert the auxiliary verb and the pronominalized nounphrase

Children, when they begin using tags, do not produce tags frequently, and never produce the full range of possibilities. Nor do adults in spontaneous speech. Since the tag is determined by the sentence in each case, we can elicit tag questions from children and adults. In this way, we could gain a good deal of information about children's ability to locate the subject of a sentence, pronominalize nouns and nounphrases, handle conjoined nounphrases, define sentence negation, handle auxiliaries which they may not produce, locate the first element of an auxiliary verb, handle subject verb agreement, tense agreement, define the subject and auxiliary of an imperative sentence, and so forth.

One could begin eliciting tag questions using a set of instructions like the following:

> "Suppose I want to say something, and I'm not really sure about it. I might say: THE SUN IS SHINING TODAY, and then, I might add: ISN'T IT? We're going to play a game like that. I'll say something, and you add the last part, like this. I say: THAT ALLIGATOR CAN BITE VERY HARD, and you say..."

Examples of the range of information available in tag questions are suggested by the following sets: (the verbphrase part of the sentence may be varied to anything appropriate to the situation).

AFFIRMATIVE / NEGATIVE INTERACTION

I will do it,
I won't do it,

He couldn't come,
He could come,

BE AND HAVE

It's been done now,
It's coming now,

John's tired,
John's finished his lunch,

They're doing it,
I was going,
They were annoyed,
I'm coming,

FIRST ELEMENT OF AUXILIARY

He could have done it,
I will have been swimming since
this morning,
They would have been coming anyway,

MODAL AUXILIARIES

I could have found it,
They should arrive soon,
He will ask us,
She can do it,

SUBJECT AND AUXILIARY OF IMPERATIVES

Help me find this book,
Sit down,
Come here,

DO AS AUXILIARY VERB

I need some cookies,
You see the truck,

SUBJECT-VERB AGREEMENT

I hit the ball,
He hits the ball,

You throw the stone,
John throws the stone,

TENSE AGREEMENT

I go there often,
I went there yesterday,

He walked farther,
He walks frequently,

LOCATION OF GRAMMATICAL SUBJECT

The girl pushed the boy,
The boy was pushed by the girl,
John and you played together,
Three boys and a girl are playing together,

DEFINITION OF SENTENCE NEGATION

He came here,
He never came,

He is unhappy,
He is happy,

I saw the boy who didn't go to school,
The boy who didn't go to school was fishing,

Nobody likes me,
Everybody likes me,

They have no sense,
They have little sense,

PRONOMINALIZATION

John came home early,
Sue is running,
The boys are playing,
The chair tipped over,

Both of them did it,
The two of us want some,

John and Bill played together,
John and I played together,

Yesterday after we came home from a long walk, the little girl came out to greet us,
I know where the boy is hiding,
The boys who jumped over the fence in my neighbors'yard ran away,

LIMIT ON APPLICABILITY OF TAG

Who finished this?

App.1.3.5. Bellugi's Transformation Test (pers. comm.)

The child is first given the "Models," one investigator uttering the sentence on the left, and another that on the right. The investigator and his native assistant could play this game for the child, if the investigator's command of the language is sufficient; or an older child could be enlisted to play the role of model respondent. The child is then given the "Test" series of sentences; in this series he is presented with the left-hand sentence and is expected to produce the right-hand form.

Wh Questions; NP Object

Models:	1.	He will see what?	1.	**What will he see?**
	2.	He can have what?	2.	What can he have?
	3.	He wanted what?	3.	What did he want?
	4.	He is moving what?	4.	What is he moving?
Test:	1.	He will sing what?	1.	What will he sing?
	2.	He can fix what?	2.	What can he fix?
	3.	He played what?	3.	What did he play?

	4.	He is painting what?	4.	What is he painting?
	5.	He won't eat what?	5.	What won't he eat?
	6.	He cannot wear what?	6.	What can't he wear?
	7.	He found what?	7.	What did he find?
	8.	He didn't find what?	8.	What didn't he find?

Separable Verb and NP Object

Models:	1.	He put on his coat.	1.	He put his coat on.
	2.	He took off his hat.	2.	He took his hat off.
	3.	He turned over the book.	3.	He turned the book over.
	4.	He picked up the paper.	4.	He picked the paper up.
Test:	1.	He knocked over the chair.	1.	He knocked the chair over.
	2.	He poured in the milk.	2.	He poured the milk in.
	3.	He wiped off the table.	3.	He wiped the table off.
	4.	He threw out the garbage.	4.	He threw the garbage out.

Active-Passive

Models:	1.	The boy chased the dog.	1.	The dog was chased by the boy.
	2.	The lady kissed the man.	2.	The man was kissed by the lady.
	3.	The truck hit the car.	3.	The car was hit by the truck.
	4.	The cow kicked the horse.	4.	The horse was kicked by the cow.
Test:	1.	The bird heard the cricket.	1.	The cricket was heard by the bird.
	2.	The boy pushed the girl.	2.	The girl was pushed bv the boy.
	3.	The chicken liked the duck.	3.	The duck was liked by the chicken.
	4.	The ant caught the fly.	4.	The fly was caught by the ant.
	5.	The boy ate the hamburger.	5.	The hamburger was eaten by the boy.
	6.	The girl drank the milk.	6.	The milk was drunk by the girl.
	7.	The policeman stopped the car.	7.	The car was stopped by the policeman.
	8.	The mother set the table.	8.	The table was set by the mother.

Conjunction

Models:

1.	It was sunny this morning but _____.	1.	...later it will rain.
2.	I have a new puppy and _____.	2.	...I like him very much.
3.	My car looks old even though _____.	3.	...it is new.
4.	I want a sandwich because _____.	4.	...I am hungry.

Test:

1. The boy is taking a bath even though _____.
2. She is pretty and _____.
3. The car hit him but _____.
4. He is going to school even though _____.
5. The kite will fly if _____.
6. His mother spanked him and so _____.

7. They cannot open the box because _____.
8. He goes to school every day unless _____.
9. I took my umbrella because _____.
10. She is happy now but _____.
11. The boy can fix the airplane if _____.
12. The boy is taking a bath because _____.
13. The car hit him and _____.
14. She is pretty but _____.
15. They cannot open the box even though _____.

* * *

Note that the child's grasp of various sorts of conjunctions can be tested by this sentence-completion technique. In English, for example, one might compare but and and, or before and after, to see if the child has mastered the particular grammatical restrictions involved. (This test can be presented as a simple sentence-completion task, with the instruction, "Can you finish what I say?")

But/and:

It's raining today but _____.
It's raining today and _____.

I'm hungry for my dinner and _____.
I'm hungry for my dinner but _____.

Comparison of time restrictions:

Before/after:

I saw some children before _____.
I saw some children after _____.

I hit him before _____.
I hit him after _____.

App.1.3.6. Morphological Generalization Tests

App.1.3.6.1. Berko's Test (1958)

(Each item is accompanied by a pictorial representation of the objects and/or actions described.)

1. Plural. One bird-like animal, then two. "This is a wug /wəg/. Now there is another one. There are two of them. There are two _____."

2. Plural. One bird, then two. "This is a gutch /gəč/. Now there is another one. There are two of them. There are two _____."

3. Past tense. Man with a steaming pitcher on his head. "This is a man who knows how to spow /spow/. He is spowing. He did the same thing yesterday. What did he do yesterday? Yesterday he _____."

4. Plural. One animal, then two. "This is a kazh /kæž/. Now there is another one. There are two of them. There are two _____."

5. Past tense. Man swinging an object. "This is a man who knows how to rick /rik/. He is ricking. He did the same thing yesterday. What did he do yesterday? Yesterday he _____."

6. Diminutive and compounded or derived word. One animal, then a miniscule animal. "This is a wug. This is a very tiny wug. What would you call a very tiny wug? This wug lives in a house. What would you call a house that a wug lives in?"

7. Plural. One animal, then two. "This is a tor /tɔr/. Now there is another one. There are two of them. There are two _____."

8. Derived adjective. Dog covered with irregular green spots. "This is a dog with quirks /kwərks/ on him. He is all covered with quirks. What kind of dog is he? He is a _____ dog."

9. Plural. One flower, then two. "This is a lun /lən/. Now there is another one. There are two of them. There are two _____."

10. Plural. One animal, then two. "This is a niz /niz/. Now there is another one. There are two of them. There are two _____."

11. Past tense. Man doing calisthenics. "This is a man who knows how to mot /mat/. He is motting. He did the same thing yesterday. What did he do yesterday? Yesterday he _____."

12. Plural. One bird, then two. "This is a cra /kra/. Now there is another one. There are two of them. There are two _____."

13. Plural. One animal, then two. "This is a tass /tæs/. Now there is another one. There are two of them. There are two _____."

14. Past tense. Man dangling an object on a string. "This is a man who knows how to bod /bad/. He is bodding. He did the same thing yesterday. What did he do yesterday? Yesterday he _____."

15. Third person singular. Man shaking an object. "This is a man who knows how to naz /næz/. He is nazzing. He does it every day. Every day he _____."

16. Plural. One insect, then two. "This is a heaf /hiyf/. Now there is another one. There are two of them. There are two _____."

17. Plural. One glass, then two. "This is a glass . . ."

18. Past tense. Man exercising. "This is a man who knows how to gling /gliŋ/. He is glinging. He did the same thing yesterday . . ."

19. Third person singular. Man holding an object. "This is a man who knows how to loodge /luwdž/ . . ."

20. Past tense. Man standing on the ceiling. "This is a man who knows how to bing /biŋ/ . . ."

21. Singular and plural possessive. One animal wearing a hat, then two wearing hats. "This is a niz who owns a hat. Whose hat is it? It is the _____ hat. Now there are two nizzes. They both own hats. Whose hats are they? They are the _____ hats."

22. Past tense. A bell. "This is a bell that can ring. It is ringing . . ."

23. Singular and plural possessive. One animal wearing a hat, then two. "This is a wug who owns a hat . . ."

24. Comparative and superlative of the adjective. A dog with a few spots, one with several, and one with a great number. "This dog has quirks on him. This dog has more quirks on him. And this dog has even more quirks on him. This dog is quirky. This dog is ____. And this dog is the ____."

25. Progressive and derived agentive or compound. Man balancing a ball on his nose. "This is a man who knows how to zib /zib/. What is he doing? He is ____. What would you call a man whose job is to zib?"

26. Past tense. An ice cube, then a puddle of water. "This is an ice cube. Ice melts. It is melting. Now it is all gone. What happened to it? It _____."

27. Singular and plural possessive. One animal wearing a hat, then two. "This is a bik /bik/ who owns a hat . . ."

App.1.3.6.2. Kernan and Blount's Test (1966)

(This is a Spanish adaptation of Berko's test, designed for use in Mexico, with appropriate accompanying pictures.)

1. Plural. Esta es una tifa. Ahora hay otra. Hay dos de ellas. Hay dos _____. [This is a tifa. Now there is another one. There are two of them. There are two _____.]

2. Plural. Esta es una fepa . . .

3. Plural. Este es un fetor. Ahora hay otro. Hay dos de ellos. Hay dos _____. [This is a fetor . . .]

4. Diminutive. Este es un fetor pequeño. ¿Cómo se llama un fetor pequeño? [This is a small fetor. What do you call a small fetor?]

5. Diminutive. Este es un tifo pequeño . . . [This is a small tifo . . .]

6. Agentive-active. Este es un hombre que sabe ticar. Está ticando. ¿Cómo se llama un hombre que tica? [This is a man who knows how to tica. He is tica-ing. What do you call a man who tica-s?]

7. Place of business. Esta es una tienda que vende pretas. ¿Cómo se llama una tienda que vende pretas? [This is a store that sells pretas. What do you call a store that sells pretas?]

8. Agentive-occupation. Este es un hombre que vende pretas. ¿Cómo se llama un hombre que vende pretas? [This is a man who sells pretas. What do you call a man who sells pretas?]

9. Future tense. El hombre tica. Mañana lo hará. Mañana, él _____. [The man tica-s. Tomorrow, he will do it. Tomorrow, he _____.]

10. Present perfect tense. *El hombre tica. Lo ha hecho muchas veces. Muchas veces, él ha* _____. [The man tica-s. He has done it many times. Many times, he has _____.]

11. Past tense--imperfect. *El hombre tica. Lo hace todos los días. Todo el año pasado, lo hacía. Todo el año pasado, él* _____. [The man tica-s. He does it every day. All the past year he did it. All the past year, he _____.]

12. Past tense--preterite. *El hombre soste. Lo hace hoy. Ayer, lo hizo. Ayer, él* _____. [The man soste-s. He does it today. Yesterday, he did it. Yesterday, he _____.]

13. Present perfect tense. *El hombre soste. Lo ha hecho muchas veces. Muchas veces, él ha* _____. [The man soste-s . . .]

14. Future tense. *El hombre soste. Mañana, lo hará. Mañana, él* _____. [The man soste-s . . .]

15. Past tense--imperfect. *El hombre tote. Lo hace todos los días. Todo el año pasado, lo hacía. Todo el año pasado, él* _____. [The man tote-s . . .]

16. Future tense. *El hombre tote. Mañana, lo hará. Mañana, él* _____. [The man tote-s . . .]

17. Past tense--preterite. *El hombre tote. Lo hace hoy. Ayer, lo hizo. Ayer, él* _____. [The man tote-s . . .]

18. Present perfect tense. *El hombre suecha. Lo ha hecho muchas veces. Muchas veces, él ha* _____. [The man suecha-s . . .]

19. Past tense--preterite. *El hombre suecha. Lo hace hoy. Ayer, lo hizo. Ayer, él* _____. [The man suecha-s . . .]

20. Past tense--imperfect. *El hombre suecha. Lo hace todos los días. Todo el año pasado, lo hacía. Todo el año pasado, él* _____. [The man suecha-s . . .]

21. Possessive--singular. *Esta es una tifa quien tiene una botella. ¿De quién es la botella*? [This is a tifa who has a bottle. Whose bottle is it?]

22. Possessive--plural. *Hay dos tifos. Los dos tienen sombreros. ¿De quién son estos sombreros*? [There are two tifos. They both have hats. Whose hats are they?]

App.1.3.6.3. Ervin-Tripp and Miller's Test (Miller & Ervin, 1964)

Pairs of identical wooden nonsense objects were constructed for each of the following names: *bik*, *pud*, *tass*, *bunge*, *nizz*, *kigh*, *po*. One object was named, and the child was then asked to name both, following instructions similar to those used by Berko. Note that the nonsense names, like those of Berko, allow for elicitation of the full range of standard English plural morphemes: /-s/, /-z/, and /-ɨz/. The investigators describe the test as follows:

> The plural test consisted of 17 items. In each case a toy object or picture was shown, its name elicited, and then two were shown. "Here are two what?" Thus the test did not give the children the option of using a syntactical plural signal rather than a morphological one. The items included certain pairs in which nonsense items (wooden constructions) were given names which had the same final consonant as a familiar word (_boy_-_kigh_, _block_-_bik_, _bed_-_pud_, _horse_-_tass_, _orange_-_bunge_). Irregulars were _foot_, _man_, and _house_. The singular of the regular and nonsense words was offered by the investigator if it was not offered by the child. In the case of _foot_ and _man_, however, the singular was not offered by the investigator. This procedure was followed in order to determine which form, e.g., _foot_ or _feet_, was used by the child as the singular. Testing was stopped on items after they had been contrasted for several months (p. 12).

App.1.3.6.4. Bogoyavlenskiy's Test (1957)

The test was administered in the Soviet Union in Russian. Children were asked to supply diminutive suffixes to words that do not generally receive such suffixes, or at least not in the experience of the child (giraffe, sheep, acorn, oak, lion, ostrich, nose, wolf, nail).

APP.2. TRANSCRIPTION OF TAPES*

App.2.1. Nature of Transcription

For most purposes of grammatical analysis, a roughly morphemic transcription will be adequate. This is the technique followed in the work of Roger Brown's group, defined as follows (Brown & Fraser, 1964, p. 52):

> What is the level of detail in the transcription? It is neither phonetic nor phonemic but only morphemic. It is, in short, as if we were to write down in conventional English spelling what an adult seemed to be saying in an interview. Of course the intelligibility of speech in the youngest children was not very good. We found it helpful to do no writing for the first half hour and to have the mother interpret for us everything her child said in that period. In this time we learned to allow for the child's phonetic peculiarities and sometimes found an initial near-complete unintelligibility giving way to about 75 per cent intelligibility. At grammatically crucial points our general rule was to credit the child with the regular adult contrast if he made any sort of appropriate phonetic distinction. For instance, the emergence of the modal auxiliary *will* in a sentence like *I will get my book* is not at first marked with a well articulated /wil/ but probably only with a shift of the vowel formants in the *I* toward a back vowel like /u/. If we could hear a difference between this *I* and the way *I* sounded in *I got my book,* the child was credited with *will*. For the last six cases we were ultimately able to transcribe fully an average of 78 per cent of the total utterances on the tapes; this is a degree of success quite similar to that reported in previous studies (McCarthy, 1954). Where we were uncertain about the accuracy of transcription, the material was placed in brackets.

In addition to morphemic rendering of utterances, the transcription should also contain enough information about the settings of utterances to make their meanings clear. This necessitates some on-the-spot note-taking. Most researchers also recommend running notes on what is said, in order to facilitate transcription, but this may not be possible in the field. Even with the help of running notes, and Brown and Fraser's native language proficiency in English, it took them about four hours to go over each hour of recorded tape, with successful transcription of about 78% of the material! The time required to transcribe foreign language tapes, or course, is very much greater. In our experience upwards of 12 hours has been required to transcribe one hour of child language in Russian. The field investigator, therefore, should be sure of the value of his recorded data before beginning the arduous task of transcription.

In investigating specific, delimited problems, an entire transcription may not be necessary. One may, for example, wish to note only occurrences of two-word utterances, or only plural inflections, etc. In some cases it may be possible to take such notes *in situ*, or to glean them from a tape without full transcription. Braine found it possible, in two cases, to arrive at a sophisticated analysis of pivot structures on the basis of written records:

---

* Additional advice on transcription is given in 1.2.4, and in Samarin (1967, pp. 102-5).

> In the case of two children, Gregory and Andrew, the mother or both parents maintained a seriatim written record of their child's spontaneous comprehensible utterances. A 'spontaneous' utterance was defined as any utterance which was not a direct imitation or repetition of something said by another person in the previous few seconds. A 'comprehensible' utterance was defined as any utterance which the parent could identify with considerable confidence as an attempt to say an English word or morpheme, or a string of English words or morphemes. The parents were instructed not to attempt to represent pronunciation, but merely to record in conventional spelling the word or sequence of words they heard the child say. In the case of word combinations the parents also recorded a paraphrase into ordinary English indicating what they understood by the child's utterance. . . . [Footnote follows in parentheses.]
>
> (No tape recordings were made of Gregory and Andrew in the early months because of the uneconomically large number of hours spent in recording and listening that would have been required to obtain the small number of word combinations at the child's command. A few tape recordings were made in the fifth month, and after the sixth month a high proportion of each corpus was tape-recorded, the written record being eventually abandoned as no longer practicable. . . . Comparison of the written record with tape recordings made at the same age revealed that constructions present in the one were always present in the other, and with about equal frequency, a fact which is evidence of the reliability of the written records.)
>
> In the case of the third child, Steven, a similar written record was soon abandoned, primarily because serious question arose whether certain sounds were properly identifiable as words. To resolve this question required investigation of phonetic regularities in Steven's speech. The entire corpus was therefore tape-recorded. The material discussed here was obtained in twelve play sessions of about four hours total duration, spaced over a four-week period during the fourth and fifth months. During the play sessions Steven's mother kept a running record of what she understood Steven to say; morpheme identifications were based on a comparison of her written record with the sounds on the tape, made in the light of what had been learned about the phonetic characteristics of Steven's speech.
>
> The fact that the data on Steven were tape-recorded should not mislead the reader into thinking that the morpheme identifications are necessarily more reliable in his case. The major factor affecting the certainty with which a child's words can be identified is the clarity with which he speaks, and Gregory and Andrew spoke more clearly than Steven (1963a, pp. 2-3).

Although a roughly morphemic transcription is recommended, aspects of phonology which are relevant to morphology often deserve phonetic or phonemic transcription. For example, if one were interested in studying the English plural inflection, voicing of the final s would be of interest, and one would want to indicate whether boys had been realized as /boys/ instead of /boyz/. As a rough guide, assume the transcription to reflect standard pronunciation, and indicate by closer transcription whenever non-standard pronunciation seems to be relevant to a problem of grammatical analysis.

App.2.2. Suggested Transcription Format for Dialog

Slobin has found the following transcription format convenient, based on the format developed at Harvard by Roger Brown's research group. The child's speech appears on the left-hand side of the page; the speech of adults on the right. The actual transcriptions are generally first written out in longhand and double-checked before being typed.

Symbols

The following symbols are used. Note that square brackets are required. The field investigator can easily have these symbols put on his typewriter before departing for the field, if they are not part of his keyboard. A convenient expedient is to replace a little-used key, such as the 1/2--1/4 key, with square brackets. These additional symbols make it possible to separately note uncertain transcriptions (parentheses), phonemic transcriptions (slashes), and situational information (square brackets).

[ ]		Commentary
[=]		Gloss
/ /		Phonemic transcription
( )		Questionable transcription
	( )	Word only faintly heard or unclear, but guessable
	([=])	Questionable gloss
	(/ /)	Questionable phonemic transcription
xxx		Muttered or garbled utterance
[X]		Initial identifying one of several adult speakers in right-hand column
...		Pause
-		Unfinished word (e.g. the bi- the big one)
+		Entire utterance repeated verbatim (e.g. "Phone!+"= "Phone! Phone!")

Punctuation

Use standard punctuation, placing punctuation marks outside slashes-- e.g. /tey/! -- and inside glosses -- e.g. [=stay!]

Margins and Placement

The child's speech is given the left side of the page from spaces 16 to 60 (elite type). All adults or extraneous children are on the right side, spaces 66-100.

Commentary pertaining to the whole situation (phone ringing, background noises not made by any of the speakers, etc.) is listed in the center of the page in square brackets.

Commentary on the action of speakers is listed in appropriate places before, after, or even during the speaker's utterance (though for the child, all action preceding an utterance is described in preceding lines, the speech following this commentary beginning on a separate line).

All speech by the child is unmarked as to speaker, since the convention places his speech and only his speech on the left side of the page, thus making it possible to scan the transcription for the child's speech alone.

All speech on the right is that of the other speakers interacting with the child, each indicated by an initial in square brackets following his utterance (e.g. [M] means that the utterance was spoken by the mother).

Additional notes

The beginning page of each transcription should be clearly marked as to child, setting, date, and time of day. All subsequent pages should be carefully marked and numbered, to prevent possible confusion with other transcriptions.

If the tape recorder has a footage indicator, it would be side to periodically mark the transcription with the footage number, so as to facilitate reference back to the original recording. The recorder should be set at 000 when beginning transcription, and the appearance of every 100 should be noted on the transcription. No tapes should be erased!

Although elaborate paralinguistic notation is probably beyond the competence of most field workers, unusual stress on particular syllables or words should be indicated by underlining, and question marks and exclamation marks should be used to indicate the corresponding gross intonational patterns in the language investigated.

Example

The following hypothetical transcription gives a clearer idea of the conventions given above.

GREGORY - 2;4,19
March 13, 1962
10:15 AM

[Living room. Mother [M] and experimenter [E] present. Gregory got up at 7:30, had breakfast at 8:00; alert, cheerful, energetic.]

TAPE
000

Hi, Mommy! How are you?

[Looking at book] Fine, thanks. [M]

[G is peering into box, in which he notices some toy cars.]
I wan' /kæz/. [=cars]

Cars? What cars? [E]

That /kæh/.
[G puts car under table.]
Look. The car under a table!
See? The ca-
[Car falls off.]

Oh? What did you do, Gregory? Did you... Uh oh! [Knocks box over.] Look what happened! [E]

xxx a /bak/! [Giggles]
/Hæn/...xxx

What? [E]

/Bak...bak/!

[Father enters]

See, Daddy?

See what, Greggie? [F]

[Phone rings]

Phone! +
(Answer the) phone.

Answer the phone? Do you want to answer the phone, Greggie? [F]
[Takes receiver off hook and hands it to G]

App.2.3. Suggested Transcription Format for Imitation

In transcribing elicited imitation tests, Slobin and Welsh (1967) have found it convenient to type the adult's model utterance in capitals and to place the child's imitation immediately beneath the model, with appropriate spacing (whenever possible) to reveal the child's omissions.

Examples

```
THE PENCIL IS GREEN
    pencil    green

THE LITTLE BOY IS EATING SOME PINK ICE CREAM
    little boy    eating some pink ice cream

THE OWL EATS CANDY AND RUNS FAST
    owl eat  candy...owl eat the candy an(d)...he run fast

THE LITTLE BOY WHO I SAW YESTERDAY WENT HOME
                   I saw a boy...went home

I CAN CAN CAN EAT
I can         eat

THE BOY THE BOOK HIT WAS CRYING
    boy the book     was crying

WHAT WILL HE SING?
what he will sing?

I SAW THE MAN AND THE MAN ATE THE ICE CREAM
I saw the man /uw/        ate the ice cream
```

APP.3. TECHNIQUES FOR STUDYING MULTILINGUALISM

The following tests are measures of lexical dominance (lexical proficiency in reference), and are described for bilingual subjects. Note that these are tests of language dominance rather than tests of absolute skill in either language.

App.3.1. Picture Vocabulary Test

Materials

Two sets of 60 pictures each, depicting simple objects nameable in both (or all) languages under study. To be sure they are nameable for the age group tested, try them out on some sample children outside the group chosen to be subjects. The investigator may find it necessary to use fewer than 120 pictures in dealing with young children; the figure 120 is based on research with adult subjects. However, the longer the test, the more trustworthy the results. If multilingualism is compared across age groups, the same test should be used for subjects of all ages.

The following pictures were used in Ervin-Tripp's Japanese study (1967): boy, pitcher, kettle, baby, basket, book, vase, barrel, drum, ball, bow and arrow, fire, fan, money, watch, ring, glove, shoe, glasses, purse, duck, chicks, rooster, shells, fish, net, bone, antlers, hat, bread, egg, onions, carrots, potato, beans, rice, apple, berries, watermelon, cup, face, cheek, eye, tear, nose, mouth, teeth, ear, neck, shoulder, hand, finger, arm, leg, knees, foot, heel, tail, wing, feather, deer, wolf, bear, elephant, horse, cow, sheep, pig, cat, dog, rabbit, mouse, snake, butterfly, spider, bee, snail, turtle, bird, nest, ladder, shelf, umbrella, broom, candle, phone, desk, table, chair, staircase, tub, door, gate, house, roof, castle, church, bridge, wheel, gun, sun, moon, cloud, rain, lightning, rainbow, snow, mountains, river, lake, waterfall, road, rock, wave, sea, island, ship, plane, train, car.

Note that the pictures were grouped by domain, making them less ambiguous. Half of the pictures are to be compiled in one set, half in another. There should be a number of pictures to a page, so as to minimize speed of page-turning as a relevant performance variable. The pages should be separated by black sheets, and each page should be put in a plastic folder.

Pilot studies have shown that it is often useful to have the pictures drawn by a member of the speech community under investigation. The objects must be easily named in each language and have different names in each. The pictures used should be pretested to determine that they are recognizable objects which can be easily named with single words, rather than descriptive phrases.

A special, small set of pictures should be prepared for use in a warm-up test, to make sure that subjects understand the instructions.

The researcher will need a stopwatch.

Instructions

The specific instructions should be worked out on a trial group of subjects; they should be kept uniform for all subjects tested. Possible instructions are:

> I'm going to show you a series of pictures. You can turn the pages yourself. Please say the names of the pictures as fast as possible in the language I name. If you do not know the right name for the picture, guess at it, or describe it, or say what the thing is used for. Don't just go by it. The most important thing is that you say something about each picture. Do not skip any picture.
>
> Now say the first three pages in (name language). For each picture, don't forget to say the name, or describe, or say the use of the thing. See how soon you can do it. Do you have any questions?

Note that these instructions stress speed of response, and are not concerned with preventing detailed instructions. The instructions devised in a particular field situation depend on the behavior noted in pilot studies. For example, in some situations instructions such as the following may be more appropriate:

> I'm going to show you some pictures of different things. I'd like to know how they are named in (name language). Just name them and do not describe them in detail. If you do not know the name, give a short description. Here is an example. All you would say for that would be "cat." (Show series.)
>
> (Show next series.) Now I'm going to show you some more pictures. This time give me all their names in (name language).

Whether it is necessary to emphasize avoiding detail or naming each picture depends on what subjects tend to do in the pilot test. Obviously, a timed score means nothing if subjects skip pictures they cannot name.

Good pretesting and rearranging of pictures to weed out ambiguous ones will help avoid cases of data distortion due to specific pictures.

Procedure

Materials are presented in an abba order, showing each set of pictures twice, the first time in Language A first, and the second time in Language B first:

Set 1	Language A
Set 2	Language B
Set 1	Language B
Set 2	Language A

A stopwatch record is kept of the total time for each of the four sections of the test. The total administration will take five minutes or so, depending on the number of pictures used. Keep a record of the four times for each subject.

Scoring

The language dominance score is the difference in log seconds between the mean times for the two books in each language. (Another interesting feature of behavior to notice is whether naming proceeds left to right, up and down, or what.)

App.3.2. Word Association Test

The subject is presented with a culturally familiar object as a stimulus and is asked to give as many words in a given language as he can think of in a limited period of time. The words he gives do not necessarily have to be descriptive of the object, but merely whatever comes into his mind when presented with the stimulus. Alternatively, words, rather than objects, can be used as stimuli. Possible instructions are:

> I'm going to say 20 words. I'll say them one by one. Repeat the word I said, then say all the words you think of when you hear the word, until I tell you to stop. When you say these words, remember the first word. Say words and not sentences. Use (name language) only.
>
> For example, if I say "shoes," you say "shoes." Then you might say, "foot, walk, brown, see, heavy." The words do not have to be logical. Try to think of words like the first one in meaning. Just use (Language A) words now.
>
> (Later) Now use (Language B) words.

A time period of 30-45 seconds is recommended. Time period and stimuli should, of course, be kept constant across languages and subjects. Difference in dominance for the languages of each subject will be the mean number of associations given for each stimulus. The stimuli should be pretested for familiarity in all languages tested.

App.3.3. Following Directions

Rao (1964) has developed a test of bilingualism which could readily be adapted for use with children of various ages. To employ such a test, one need merely employ a simple set of items with features that one expects every child to be able to name by the age tested. For example, one could use a shape and color test with primary school children. There would be, on tape, a set of recorded instructions saying things like: "Put the red block on the green one." "Put the blue square inside the cup." The relative rate of response in each language would be measured with a stopwatch. Of course, if the difference between the languages is great enough, one could simply use a power test, i.e. an untimed test to see how many instructions could be followed.

Both the Directions Test and the Picture Vocabulary Test depend on using very simple vocabulary, and test quite limited aspects of multilingual skill.

App.3.4. Self-Ratings

Macnamara has found that for Montreal sixth graders self-ratings on speaking and listening skill in French and English proved to be quite good predictors of more complicated measures of performance. Evidently the community was sufficiently bilingual so that the children had frequent opportunities to assess their relative ease at communicating in the two languages. He points out that self-ratings can be inaccurate if there are external biasing factors. These might include grades in school for language skill, stereotypes in the community or family about one's skill, and feelings about the relative value of skill in the two languages.

APP.4. USEFUL TABLES

App.4.1. Age Calculation Chart

The following chart is taken from Preyer (1900, p. 395). It shows the week and month corresponding to each day of life, from birth to age three. Each square represents a quarter of a year. The German terms in the table are: Wochen = weeks, Tage = days, Monate = months, od. = or.

Wochen	Tage	Monate	Wochen	Tage	Monate	Wochen	Tage	Monate	Wochen	Tage	Monate
1	7	1	40	280	10	79	553	19	118	826	28
2	14		41	287		80	560		119	833	
3	21		42	294		81	567		120	840	
4	28		43	301		82	574		121	847	
5	35	2	44	308	11	83	581	19 od. 20	122	854	28 od. 29
6	42		45	315		84	588	20	123	861	29
7	49		46	322		85	595		124	868	
8	56		47	329		86	602		125	875	
9	63	3	48	336	11 od. 12	87	609	20 od. 21	126	882	29 od. 30
10	70		49	343	12	88	616	21	127	889	30
11	77		50	350		89	623		128	896	
12	84		51	357		90	630		129	903	
13	91	3 od. 4	52	364		91	637		130	910	
14	98	4	53	371	13	92	644	22	131	917	31
15	105		54	378		93	651		132	924	
16	112		55	385		94	658		133	931	
17	119		56	392		95	665		134	938	
18	126	5	57	399	14	96	672	22 od. 23	135	945	31 od. 32
19	133		58	406		97	679	23	136	952	32
20	140		59	413		98	686		137	959	
21	147		60	420		99	693		138	966	
22	154	6	61	427	14 od. 15	100	700	23 od. 24	139	973	32 od. 33
23	161		62	434	15	101	707	24	140	980	33
24	168		63	441		102	714		141	987	
25	175		64	448		103	721		142	994	
26	182	6 od. 7	65	455	15 od. 16	104	728		143	1001	
27	189	7	66	462	16	105	735	25	144	1008	34
28	196		67	469		106	742		145	1015	
29	203		68	476		107	749		146	1022	
30	210		69	483		108	756		147	1029	
31	217	8	70	490	17	109	763	26	148	1036	34 od. 35
32	224		71	497		110	770		149	1043	35
33	231		72	504		111	777		150	1050	
34	238		73	511		112	784		151	1057	
35	245	8 od. 9	74	518	17 od. 18	113	791	26 od. 27	152	1064	
36	252	9	75	525	18	114	798	27	153	1071	36
37	259		76	532		115	805		154	1078	
38	266		77	539		116	812		155	1085	
39	273		78	546		117	819		156	1092	
Wochen	Tage	Monate	Wochen	Tage	Monate	Wochen	Tage	Monate	Wochen	Tage	Monate

App.4.2. International Phonetic Alphabet

This table is distributed by the International Phonetic Association. The underlying principles can be found in International Phonetic Association (1949). The investigator should also carefully study Samarin's section on phonology (1967, pp. 178-194), where he will also find additional references.

THE INTERNATIONAL PHONETIC ALPHABET.

(Revised to 1951.)

	Bi-labial	*Labio-dental*	*Dental and Alveolar*	*Retroflex*	*Palato-alveolar*	*Alveolo-palatal*	*Palatal*	*Velar*	*Uvular*	*Pharyngal*	*Gl*
Plosive	p b		t d	ʈ ɖ			c ɟ	k g	q ɢ		
Nasal	m	ɱ	n	ɳ			ɲ	ŋ	ɴ		
Lateral Fricative			ɬ ɮ				ʎ̝				
Lateral Non-fricative			l	ɭ			ʎ				
Rolled			r						ʀ		
Flapped			ɾ	ɽ					ʀ		
Fricative	ɸ β	f v	θ ð | s z | ɹ	ʂ ʐ	ʃ ʒ	ɕ ʑ	ç ʝ	x ɣ	χ ʁ	ħ ʕ	h
Frictionless Continuants and Semi-vowels	w | ɥ	ʋ	ɹ				j (ɥ)	(w)	ʁ		
							Front	*Central* *Back*			
Close	(y ʉ u)						i y	ɨ ʉ ɯ u			
Half-close	(ø o)						e ø	ɤ o			
								ɵ			
Half-open	(œ ɔ)						ɛ œ	ʌ ɔ			
							æ	ɐ			
Open	(ɒ)						a	ɑ ɒ			

(Secondary articulations are shown by symbols in brackets.)

OTHER SOUNDS.—Palatalized consonants: ƫ, ȡ, etc.; palatalized ʃ, ʒ: ʆ, ʓ. Velarized or pharyngalized consonants: ɫ, ᵭ, ᵶ
jective consonants (with simultaneous glottal stop): p', t', etc. Implosive voiced consonants: ɓ, ɗ, etc. ɼ fricative trill.
(labialized θ, ð, or s, z). ʅ, ʓ (labialized ʃ, ʒ). ʇ, ʗ, ʖ (clicks, Zulu *c*, *q*, *x*). ɺ (a sound between r and l). ŋ Japanese syllabic nasa
ombination of x and ʃ). ʍ (voiceless w). ɪ, ʏ, ɷ (lowered varieties of i, y, u). ɜ (a variety of ə). ɵ (a vowel between ø and o).

Affricates are normally represented by groups of two consonants (ts, tʃ, dʒ, etc.), but, when necessary, ligatures are used (ʦ,
etc.), or the marks ⁀ or ‿ (t͡s or t‿s, etc.). ⁀ ‿ also denote synchronic articulation (m͡ŋ = simultaneous m and ŋ). c, ɟ may occa
lly be used in place of tʃ, dʒ, and ƾ, ƻ for ts, dz. Aspirated plosives: ph, th, etc. r-coloured vowels: eɹ, aɹ, ɔɹ, etc., or eʴ, aʴ, ɔʴ,
r ᶒ, ᶏ, ᶗ, etc.; r-coloured ə: əɹ or əʴ or ɹ or ᶕ or ɚ.

LENGTH, STRESS, PITCH.—ː (full length). ˑ (half length). ˈ (stress, placed at beginning of the stressed syllable). ˌ (secor
tress). ˉ (high level pitch); ˍ (low level); ˊ (high rising); ˏ (low rising); ˋ (high falling); ˎ (low falling); ˆ (rise-fall); ˇ (fall-

MODIFIERS.—˜ nasality. ˳ breath (l̥ = breathed l). ˬ voice (s̬ = z). ʻ slight aspiration following p, t, etc. ̫ labi
tion (n̫ = labialized n). ̪ dental articulation (t̪ = dental t). ˙ palatalization (ż = ʑ). ̣ specially close vowel (ẹ = a very clos
specially open vowel (ę = a rather open e). ˔ tongue raised (e˔ or e̝ = ẹ). ˕ tongue lowered (e˕ or e̞ = ę). ˖ tongue advanced (u˖
= an advanced u, t̟ = t̪). ˗ or ˍ tongue retracted (i˗ or i̠ = ɨ˖, t̠ = alveolar t). ˒ lips more rounded. ˓ lips more spread. C
Vowels: ï (= ɨ), ü (= ʉ), ë (= ə˔), ö (= ɵ), ɛ̈, ɔ̈. ̩ (e.g. n̩) syllabic consonant. ̯ consonantal vowel. ʃ˞ variety of ʃ resembling s, etc.

APP.5. SELECTED LIST OF REFERENCES ON THE ACQUISITION OF 21 DIFFERENT NATIVE LANGUAGES

The following publications, all listed in full in the References section, below, represent a partial listing of available materials on children's primary acquisition of a number of different languages. These materials can provide the investigator with data for the preliminary testing of cross-linguistic hypotheses; can suggest a variety of research techniques; and, in some cases, provide accounts of development in the field language or related languages.

Monolingual Children

Bulgarian: Gheorgov (1905, 1906, 1908)

Chinese: Chao (1951)

Czech: Čáda (1906-8), Ohnesorg (1948, 1959), Rūķe-Draviņa (1965)

Danish: Jespersen (1916), Rasmussen (1913, 1922)

Dutch: Ginneken (1917), Kaper (1959, 1966), Tinbergen (1919)

English: Bateman (1914, 1915), Bellugi (1964, 1965, 1967), Berko (1958), Bohn (1914), Boyd (1913, 1926-7), Braine (1963a, in press), Brown (1957), Brown & Bellugi (1964), Brown & Berko (1960), Brown & Fraser (1963), Bruce (1964), Bullowa et al. (1964), Carroll (1939), Cazden (1965), Chamberlain & Chamberlain (1904, 1905), Entwisle (1966), Ervin (1961, 1964), Ervin & Foster (1960), Fraser et al. (1963), Gruber (1967), Harwood (1959), Klima & Bellugi (1966), Lewis (1936, 1937), Livant (1962), McNeill (1966b), Menyuk (1963a,b, 1964a,b), Miller (1963, 1964), Miller & Ervin (1964), Nice (1917, 1933), Slobin (1966b), Slobin & Welsh (1967), Smith (1966), Velten (1943), Weir (1962), Winitz & Irwin (1958)

Estonian: Saareste (1936)

French: Bloch (1913, 1921, 1924), Cohen (1925, 1933, 1962), Deville (1890, 1891), Durand (1949), Grégoire (1937, 1947), Guillaume (1927a,b)

German: Ament (1899), Lindner (1882, 1885, 1898, 1906), Preyer (1900), Scupin & Scupin (1907), Stern & Stern (1907)

Hungarian: Balassa (1893), Endrei (1913), Kenyeres (1926, 1927), Simonyi (1906)

Italian: Engel (1964, 1965), Lombroso (1894)

Japanese: Kido (1931), Kubo (1922), Matumoto (1932), McNeill (1966a), McNeill & McNeill (1966), Nakazima (1962), Ohwaki (1928, 1933)

Latvian: Rūķe-Draviņa (1959, 1963, 1965)

Polish: Kaczmarek (1953), Kaus (1897), Ołtuszewski (1897), Pfanhauser (1930), Rzętkowska (1908, 1909), Skorupka (1949), Smoczyński (1955), Wawrowska (1938)

Romanian: Slama-Cazacu (1957, 1960, 1961a,b, 1962, 1965a,b, 1966a,b)

Russian: Bogoyavlenskiy (1957), Feofanov (1958), Gvozdev (1948, 1949), Lyamina (1958, 1960), Lyamina & Gagua (1963), Mallitzkaya (1960), Menchinskaya (1957), Pavlova (1924), Popova (1958), Shvachkin (1948), Slobin (1966a, in press), Sokhin (1959), Zakharova (1958), Zhurova (1963)

Spanish: Kernan & Blount (1966)

Swedish: Bolin & Bolin (1916), Rūķe-Draviņa (1963)

Bilingual Children

Bulgarian-German: Emrich (1938)

English-Garo: Burling (1959)

English-German: Leopold (1939, 1947, 1949a,b)

French-German: Ronjat (1913)

French-Serbian: Pavlovitch (1920)

Georgian-Russian: Imedadze (1960)

Latvian-Swedish: Rūķe-Draviņa (1963, 1965)

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